PURDUE UNIVERSITY BULLETIN

TECHNICAL INSTITUTE CATALOG

1955-56

Two-year curricula in

- BUILDING CONSTRUCTION
- INDUSTRIAL
- ELECTRICAL
- DRAFTING and MECHANICAL
- CHEMICAL and METALLURGICAL

Specialized programs for

- INDUSTRY
- AVIATION
- PRACTICAL NURSING

UNIVERSITY CALENDAR

1955

SEPTEMBER

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OCTOBER

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1956

JANUARY

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First Semester

June 13-August 6
Advance registration for new undergraduate students
September 14-17
Placement tests
September 18-21
Orientation for all new students
September 22
Classes begin
November 23, 6 p.m.
Thanksgiving vacation begins
November 28, 7 a.m.
Classes resume
December 21, 6 p.m.
Christmas vacation begins
January 5, 7 a.m.
Classes resume
January 28, noon
Classes end

Second Semester

January 30-February 1
Orientation and registration of new students
February 2
Classes begin
March 28, 6 p.m.
Easter vacation begins
April 5, 7 a.m.
Classes resume
May 30, 6 p.m.
Classes end
June 3
Commencement

Summer Session

June 8-9
Registration of new students
June 11
Classes begin
July 4
Independence Day Holiday
August 4, noon
Classes end

The extension activities of Purdue University operate within the Division of Technical Extension. Information regarding the extension offerings of the University may be obtained by writing to the Dean, Division of Technical Extension, Engineering Administration Building, Purdue University, Lafayette, Indiana.

PURDUE UNIVERSITY BULLETIN
VOL. LV January 7, 1955 No. 7
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Division of Technical Extension
Technical Institute
Announcements for the Year 1955-56

PURDUE UNIVERSITY

Calumet
Fort Wayne
Indianapolis
Michigan City

Eighty-first Year

LAFAYETTE, INDIANA

PUBLISHED BY THE UNIVERSITY

CONTENTS

Calendar . . . . . IFC

Definition of Technical Institute 3

General Information 5

- Special Services for Industry 5
- Requirements for Admission 6
- Fields of Study and Diplomas 6
- Credits 7
- Fees 7
- Grades and Honors 9

Programs of Study 10

- Associate Technical Aide 10
- Technical Aide 11
- Program Planning 11
- Building Construction Technology 12
- Chemical and Metallurgical Technology 14
- Drafting and Mechanical Technology 16
- Electrical Technology 18
- Industrial Technology 20

Instruction 21

Description of Courses 21

- Building Construction Technology 22
- Chemical and Metallurgical Technology 24
- Drafting and Mechanical Technology 26
- Electrical Technology 28
- General Studies 30
- Industrial Technology 32
- Physical Sciences 34

Specialized Service Programs 36

- Industrial 36
- Aviation Technician 41
- Practical Nursing 43
- Professional Pilot 45

Faculty 48

Index 50

Administrative Staff . . . . . IBC

Addresses of Regional Offices . . . . . Back Cover

PURDUE UNIVERSITY

TECHNICAL INSTITUTE

The Engineers' Council for Professional Development Defines the Technical Institute:

CURRICULA to be considered are technological in nature and lie in the post-high-school area. They differ in content and purpose from those of the vocational school on one hand and from those of the engineering college on the other. Curricula in this field are offered by a variety of institutions, and cover a considerable range as to duration and content of subject matter, but have in common the following purposes and characteristics:

(1) The purpose is to prepare individuals for various technical positions or lines of activity encompassed within the field of engineering, but the scope of the programs is more limited than that required to prepare a person for a career as a professional engineer.

(2) Programs of instruction are essentially technological in nature, based upon principles of science and include sufficient post-secondary school mathematics to provide the tools to accomplish the technical objectives of the curricula.

(3) Emphasis is placed upon the use of rational processes in the principal fundamental portions of the curricula that fulfill the stated objectives and purposes.

(4) Programs of instruction are briefer, and usually more completely technical in content than professional curricula, though they are concerned with the same general fields of industry and engineering. They do not lead to the baccalaureate degree in engineering. Such designations as Engineering Aide, Technical Aide, Associate in Engineering, and Engineering Associate are appropriate designations to be conferred upon the graduates of programs of technical institute type.

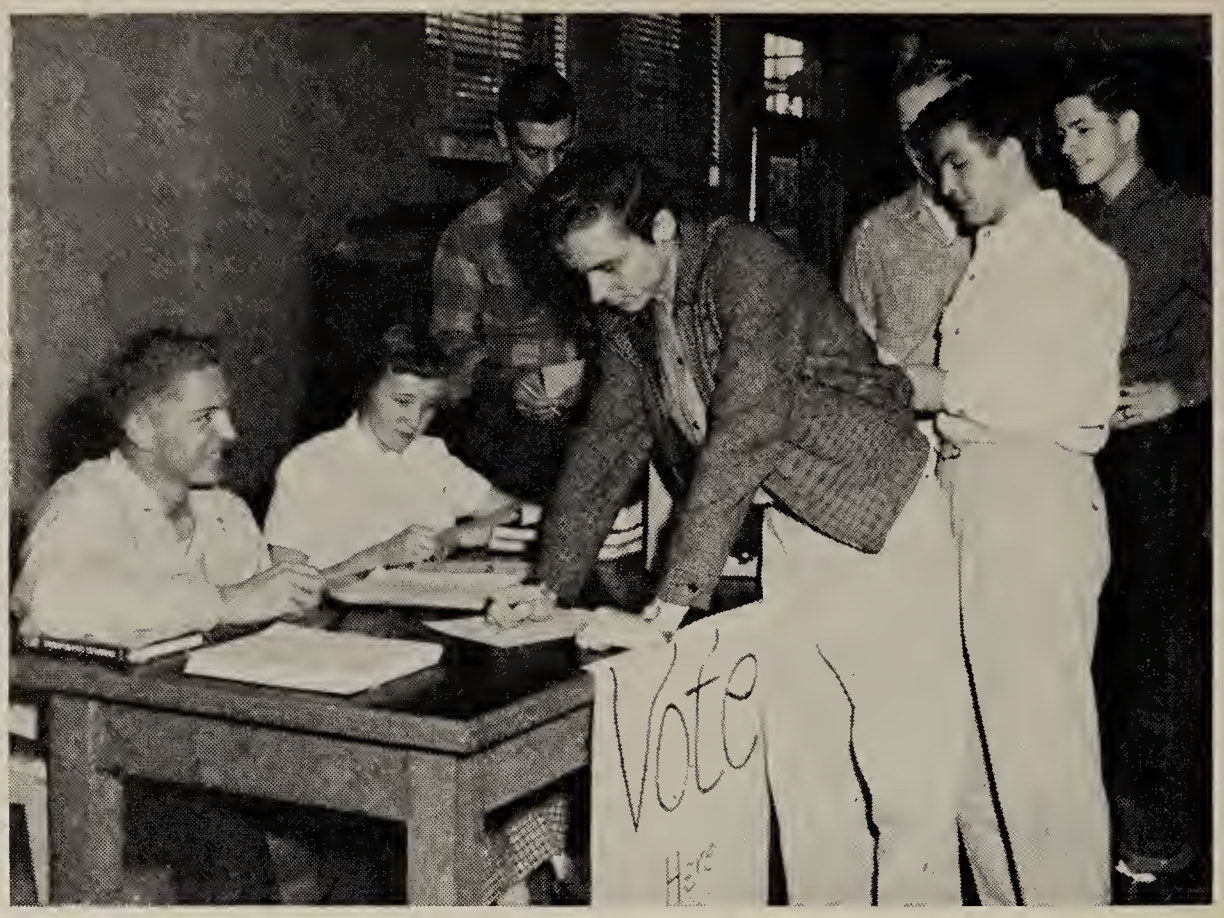
(5) Training for artisanship is not included within the scope of education of technical institute type.

The above definition has been the basis for developing and operating the Purdue University Technical Institute. Three curricula, Building Construction Technology, Drafting and Mechanical Technology, and Electrical Technology, have been inspected and accredited to date by the Engineers' Council for Professional Development.

Purdue Serves the People and the Industry of the State

PURDUE CENTERS have been established in order to serve the people living in those communities and nearby cities. However, classes may be offered in any community where there is a need for the type of training Purdue offers.

For information not given in this catalog, contact any of the Purdue Centers listed on the back cover.



Student government is important in the Centers.

Each center provides library and study facilities.

GENERAL INFORMATION

PURDUE UNIVERSITY is a state institution of higher learning, established by act of the General Assembly of Indiana in 1869 under the provisions of the Morrill Act. This Act provided aid to the several states for the establishment of land-grant colleges "without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts." For more than three-quarters of a century, Purdue has served the needs of the people of the state in the fields of agriculture, science, and technology.

Within recent years it has become apparent that there is an increasing need for trained personnel to supplement the work of the professional engineer. In order to meet this need the Technical Institute has been established as a part of the permanent plan of Purdue University.

The Institute offers specialized, intensive courses designed to meet the demand for technically trained persons. The curricula parallel and are closely related to the engineering curricula of the University. However, they differ from the engineering college type of curricula in that they emphasize applied and practical, rather than theoretical, study.

Facilities of the Institute are available to those wishing to qualify as engineering aides and technicians. Recent graduates of Purdue's Technical Institute have been employed in industry as junior draftsmen, detailers, tracer draftsmen, foremen trainees, experimental technicians, junior time-study engineers, assistant supervisors of engineering records, electrical testers, sample checkers, junior engineers, chemical laboratory technicians, estimators, job analysts, architectural draftsmen, construction inspectors, building inspectors, manufacturer's agents, personnel interviewers, tool and die designers, machinery analysts, power station operators, and technical salesmen.

Various courses are offered to cover the basic knowledge and practices of present-day industry. Industrial leaders have been consulted to learn the kind of specific technical information required by persons who take jobs in industry. Many members of the instructional staff are drawn from local industries, but course administration, teaching material, and standards of instruction are under the direction of Purdue University. All student grade records are deposited with the University Registrar and all financial matters are handled through the same procedure as govern other University business.

Two semesters of class work are offered during each school year. A summer term is available in some instances.

Through the Technical Institute, Purdue University awards diplomas to those who satisfactorily complete a prescribed program of study.

Special Services for Industry

The Technical Extension Division cooperates with individual industries in the development and operation of their industrial training programs.

Requirements for Admission

Procedure for Making Application. An application for admission must be made upon a form obtainable from the Office of Admissions, Purdue University, Lafayette, Indiana. These forms are available also at each of the Purdue Centers.

The Director of Admissions will make a report to the applicant regarding the action taken upon the application. All applicants who have been graduated by an accredited high school or secondary school may be admitted.

Applicants who are not high school graduates but who can submit evidence of an equivalent background of experience or training may be considered for admission. Previous scholastic record and extent of pertinent industrial experience are among the factors considered.

Advanced Standing. Applicants may be admitted with advanced standing:

1. By transfer of credits from other technical institutes or colleges or universities.
2. By passing special examinations in certain courses.
3. For studies carried on as part of civil or military training programs, for correspondence study, or for certain cumulative test records.
4. By evaluation of previous work experience.

Advanced standing, where granted, is stated in terms of the specific courses in which credit is allowed. Any student desiring advanced standing should make application in time for such credit to be approved before it is needed for enrollment in other courses. The applicant for advanced standing will be given a statement in writing concerning the action taken upon his request.

Special Students. Persons not planning to pursue a complete plan of study and receive a diploma are classified as special students. Such students must present satisfactory evidence that they are qualified for the instruction in the desired course including pre-requisite training or experience and sufficient language proficiency to profit from routine class procedure.

Permission to Register. The student should note that permission to register depends first of all upon being admitted to the Technical Institute. Authorizations from the Veterans Administration, or other agencies, are not to be confused with the official admission forms sent out by Purdue University.

Orientation Examinations. Each new student must take certain orientation examinations. This is required of all part-time as well as full-time students. The orientation tests should not be mistaken for entrance examinations.

Fields of Study and Diplomas

The Technical Institute was established primarily to offer complete programs of study in technical fields leading to Associate Technical Aide and Technical Aide diplomas.

Altogether, five fields of study are available. Any or all of these can be offered in any Center where the enrollment, building facilities, and industrial

need for graduates justify an expanded operation. The five programs are identified as follows:

Building Construction Technology
Chemical and Metallurgical Technology
Drafting and Mechanical Technology
Electrical Technology
Industrial Technology

These are outlined in the section on Program of Study (pages 12-21).

The University awards two Technical Institute diplomas for successful completion of the required plans of study. The Associate Technical Aide diploma is awarded to each student who satisfactorily completes one of the five programs of study. If a student wishes to take additional work in an approved program of study, he will be awarded the Technical-Aide diploma for the successful completion of 36 additional semester-hours of work.

All students working toward a diploma should have a plan of study for the semester which should be approved by a counselor at each registration. No minimum length of time is prescribed for students to complete their work toward a diploma. The semester-hours of credit for each student are permanently recorded at Purdue University; these credits are cumulative toward a diploma, regardless of whether the student is continuously enrolled in successive semesters or whether all the work is taken at any one Center.

Mature persons who desire to avail themselves of the instruction offered in any Technical Institute course without undertaking one of the regular plans of study and without becoming a candidate for a diploma may be admitted as special students. A number of courses described in this catalog are not included in any program of study and are offered primarily to meet the needs of such students.

Credits

All courses in the Technical Institute are evaluated on a semester-hour basis. For each course under Description of Courses is shown the number of hours per week of recitation and laboratory or practice required for the credit given. Recitation and similar classroom work generally require two hours of outside preparation for each class hour, while laboratory or practice periods are usually self-contained.

Fees

Course Fees. Fees and deposits for each course are listed with the course descriptions in this catalog. Fees are paid to a representative of the University at the time of registration.

Breakage Fees. Course fees include the cost of normal breakage and wear and tear on equipment. An additional charge will be levied against individuals for excessive waste, loss, or breakage as may occur. Such special charges must be paid before course credit will be given.

Diploma Fee. Students in the Technical Institute must pay a diploma fee of $5 not less than 30 days before the close of the seemster in which they expect to complete their work for a diploma.

Examinations for Advanced Standing. Technical Institute examinations for advanced standing will be administered on a group basis, free of charge, on one day only, prior to the beginning of any regular semester. Students interested should inquire at the Center office for dates and details.

Students requesting examinations at other than the regular scheduled times will be charged a fee as follows:

(1) Those currently enrolled for 12 or more semester-hours of work will be charged $2 for each examination.
(2) All others must pay $10 for each examination.

Withdrawal. In order to effect a withdrawal from any class, a student must notify the Center office at the time of withdrawal. Discontinuance of class attendance is not the basis for withdrawal, and students who do not notify the office when they plan to withdraw will be given a failing grade in each course involved.

Refunds. Course fees will be refunded under any one of the following conditions:

1. Withdrawal during first and second weeks of semester, 80 per cent refund.
2. Withdrawal during third and fourth weeks of semester, 60 per cent refund.
3. Withdrawal during fifth and sixth weeks of semester, 40 per cent refund.
4. Withdrawal after sixth week of semester, no refund.

Students who register for a course and do not attend class will be withdrawn as of the first day of class and entitled to a refund of 80 per cent of the course fees paid.

Deposits on equipment are subject to regular service and breakage charges.

Refunds are not transferable from one registration period to another or from one student to another.

To be eligible for a refund the student must notify the extension office and apply for a refund at the Center where he is registered at the time of his withdrawal.

Industrial Technology students use laboratory facilities.

Grades and Honors

Each student will receive from his instructors a grade for each course in which he is enrolled at the close of a session. The student shall be responsible for the completion of all required work by the time of the last scheduled meeting in the course unless his assignment to the course has been properly cancelled. The grade shall indicate the student's achievement with respect to the objectives of the course. The system is as follows:

Credit Courses:

A—highest passing grade.
B
C
D—lowest passing grade; passing minimal objectives of the course.
E—conditional failure; failure to achieve minimal objectives, but only to such limited extent that credit can be obtained by examination or otherwise without repeating the entire course. This grade represents failure in the course unless changed during the following semester.
F—failure to achieve minimal objectives of the course. The student must repeat the course satisfactorily in order to establish credit in it.

For zero credit courses (including thesis research but not including laboratory portions of courses in which, for purposes of scheduling, separate course designations and separate class cards are used for the laboratory sections):

S—satisfactory; meets course objectives.
U—unsatisfactory; does not meet course objectives.

For incomplete work, either credit or non-credit:

O—incomplete; no grade; a temporary record of work which was interrupted by unavoidable absence or other causes beyond a student's control, and which work was passing at the time it was interrupted. An instructor may require the student to secure the recommendation of the Center Director that the circumstances warrant a grade of Incomplete. On the record a grade of O will be equivalent to a W unless changed during the following semester.

Directed grades. The Registrar is directed to record the following grades and symbols under special circumstances:

W—Withdrew; a record of the fact that a student was enrolled in a course and withdrew or cancelled the course after the last date for late registration and adding courses.

WF—Withdrew Failing; a record of course cancellation after the last date for cancelling a course without grade, at which time, according to a statement from the instructor, the student was not passing in his work. This grade counts in all respects as a failing grade.
A grade of WF may be directed by the Center Director or the Head of the Technical Institutes when a student is dropped from a course for serious scholastic delinquency.

V—Visitor; a designation in lieu of any other grade for any student enrolled in a course as a visitor without credit.

PROGRAMS OF STUDY

Associate Technical Aide

Five programs of study have been prepared for students who wish to qualify for the Associate Technical Aide diploma.

Building Construction Technology
Chemical and Metallurgical Technology
Drafting and Mechanical Technology
Electrical Technology
Industrial Technology

Any or all of these programs may be offered in those Centers where the need, the facilities, and the enrollment warrant.

Tabular listings of courses, by semesters, for the five programs of study are given on the following pages to guide students in making their own plans. Any plan differing from those shown must be approved by a counselor.

The number of courses and the total semester-hours of credit required for the Associate Technical Aide diploma differ for the five programs. In all, however, approximately the same general organization has been followed. The programs are composed of:

A. *Fundamental Courses*
   Mathematics
   Physics
   Chemistry
   Drawing
   English
   Industrial Management

B. *Non-technical Courses*
   Government
   Economics
   Psychology
   Speech

C. *Major Field Courses*
   Specialized instruction related
   to the particular field of study.

A student desiring a diploma in any one of the five fields must establish credit in each course listed or its equivalent. Students may transfer credit from other institutions, substitute work-experience for certain courses, or pass examinations for advanced standing to establish credit equivalent to that received for satisfactorily completing a course. Such credit must be approved before it is needed for enrollment in dependent courses. Courses not listed in the following tables may be substituted for certain non-technical or major field courses upon prior written consent of the Educational Office. No substitutions for fundamental courses will be allowed.

Technical Aide

Students who have met the requirements for the Associate Technical Aide diploma are eligible to become candidates for the Technical Aide diploma. An approved plan of study for each individual student must include courses selected to give a well rounded program of technical and non-technical courses, and totaling not less than 36 semester-hours.

The plan of study may continue the original field of specialization or may be adapted to the student's actual work situation. The Technical Institute is enthusiastic in its effort to facilitate plans of work-and-study on a cooperative basis with various industries.

Any student who, because of schedule difficulties, desires to work toward the Technical Aide diploma before qualifying for the Associate Technical Aide diploma must receive prior approval of courses to be included in the advanced plan of study.

Program Planning

Full-time Students. Four semesters (two years) are required for full-time students to complete requirements for the Associate Technical Aide diploma. Students schedule between 15 and 19 semester-hours of work a semester. Students who do not follow the sequence as indicated on the following pages may have difficulty in arranging satisfactory schedules.

Students wishing to qualify for more than one Associate Technical Aide diploma may do so by working out an acceptable schedule with the Center Counselor. Any student who satisfactorily completes all of the courses in a given program is eligible for a diploma in that field of study.

Part-time Students. Students who are working may enroll on a part-time basis. The same sequence of courses as is used by the full-time students should be followed. However, five to six calendar years may be needed to complete requirements for the Associate Technical Aide diploma since four to eight semester-hours a semester are a sufficient load. Any scheduled course for which prerequisites have been met may be taken. Each student should have an approved plan of study adapted to his working schedule.

At present, the courses in a Technical Aide program of study may be scheduled on a part-time basis. This is desirable since work experience paralleling study is helpful.

Students Not Working for Diplomas. Students not working for diplomas may enroll in any course for which they are qualified. Any course listed in the catalog for which there is sufficient demand may be offered.

BUILDING CONSTRUCTION TECHNOLOGY

Associate Technical Aide Diploma

Designed to prepare students primarily for technological services with architects, contractors, and building material suppliers in the light construction industry, this major field of specialization is also designed to help the student who is interested in going into business for himself.

Emphasis is placed upon courses in architectural and structural drafting, frame and masonry construction, materials, specifications, regulations, estimating, surveying, and the related courses in mathematics, physics, and chemistry.

Also included are courses dealing with some of the historical, economic, and human relations aspects of our American industrial life, all related to the individual.

Satisfactory completion of the courses listed is required for the Associate Technical Aide diploma in Building Construction Technology.

Course descriptions are given in the back of this catalog.

First Semester

Course	No.	Course Title	Credit	Fees
BC	104	Plan Reading	1	$10
BC	116	Architectural Drawing	2	35
GN	104	English Grammar and Composition	2	20
GN	120	Psychology	2	20
PS	112	Mathematics: Geometry and Algebra	4	40
PS	120	Introductory Chemistry	3	42
PS	132	Physics: Mechanics and Electricity	4	56
			18	

Second Semester

BC	152	Frame Construction	2	$35
BC	164	Building Materials	3	30
GN	52	Physical Education	0	6–20
GN	152	Fundamentals of Technical Writing	2	20
GN	232	Democratic Government	2	20
PS	164	Mathematics: Trigonometry and Algebra	4	40
PS	168	Slide Rule	1	10
PS	172	Physics: Electricity, Heat, Sound and Light	4	56
			18	

Third Semester

BC	204	Building Regulations	2	$20
BC	216	Masonry Construction	2	35
BC	232	Perspective Drawing	1	18
BC	244	Mechanics of Materials	3	37
DM	156	Graphical Computations	2	33
GN	204	Practical Speaking	2	20
GN	220	Technical Report Writing	2	20
IT	204	Business Organization	2	20
			16	

Fourth Semester

Course	No.	Course Title	Credit	Fees
BC	252	Structural Drafting	2	$36
BC	264	Freehand Drawing	2	35
BC	272	Specifications and Contract Documents	4	40
BC	280	Quantity Survey	3	37
BC	288	Elementary Surveying	2	31
BC	296	History of Architecture	2	20
GN	64	Physical Education	0	6–20
GN	260	Economics of Industry	2	20
			17	

A class in advanced drafting works in a well-lighted and completely equipped laboratory.

CHEMICAL AND METALLURGICAL TECHNOLOGY

Associate Technical Aide Diploma

This program of study has been developed to meet the needs of two groups whose interests are related yet not identical. The plans of study have been worked out in such a way that all may enroll for the same courses in the first semester. In the second semester those wishing specialization in industrial chemistry may follow option A, and those wishing specialization in metallurgy may follow option B.

Both options include instruction in the fundamentals of industrial management, certain non-technical subjects, mathematics, and physics, as well as in the major field of specialization.

Option A, Industrial Chemistry, is designed to prepare students for technological services in chemical manufacturing plants and processing industries as well as for technician positions in chemical laboratories.

Option B, Metallurgy, is designed to prepare students for technological services in steel mills and metal processing and fabricating industries as well as for technician positions in general metallurgical laboratories.

Satisfactory completion of the courses listed for either option is required for the Associate Technical Aide diploma in Chemical and Metallurgical Technology.

Course descriptions are given in the back of this catalog.

First Semester

Course	No.	Course Title	Credit	Fees
DM	108	Technical Drawing	2	$33
GN	104	English Grammar and Composition	2	20
GN	120	Psychology	2	20
PS	112	Mathematics: Geometry and Algebra	4	40
PS	120	Introductory Chemistry	3	42
PS	132	Physics: Mechanics and Electricity	4	56
			17	

OPTION A INDUSTRIAL CHEMISTRY

Second Semester

CM	152	Industrial Chemistry: Fundamentals	2	$27
CM	160	Industrial Chemistry: Petroleum	2	29
GN	152	Fundamentals of Technical Writing	2	20
GN	52	Physical Education	0	6–20
GN	232	Democratic Government	2	20
PS	164	Mathematics: Trigonometry, Algebra	4	40
PS	168	Slide Rule	1	10
PS	172	Physics: Electricity, Heat, Sound, Light	4	56
			17	

Third Semester

CM	204	Industrial Chemistry: Organic	3	$42
CM	212	Industrial Chemistry: Qualitative	3	50
CM	220	General Metallurgy	3	30
GN	204	Practical Speaking	2	20
GN	220	Technical Report Writing	2	20
IT	104	Industrial Organization, Production	4	40
			17	

Fourth Semester

CM	252	Industrial Chemistry: Quantitative	3	$50
CM	256	Industrial Chemistry: Physics	4	58
CM	264	Chemical Unit Processes	3	41
DM	284	Instrumentation	3	39
GN	64	Physical Education	0	6–20
GN	260	Economics of Industry	2	20
IT	152	Human Relations in Industry	2	20
			17	

OPTION B METALLURGY

Second Semester

CM	152	Industrial Chemistry: Fundamentals	2	$27
CM	184	Ferrous Metallurgy	3	30
GN	52	Physical Education	0	6–20
GN	152	Fundamentals of Technical Writing	2	20
GN	232	Democratic Government	2	20
PS	164	Mathematics: Trigonometry and Algebra	4	40
PS	168	Slide Rule	1	10
PS	172	Physics: Electricity, Heat, Sound and Light	4	56
			18	

Third Semester

CM	212	Industrial Chemistry: Qualitative	3	$50
CM	228	Physical Metallurgy	4	51
DM	240	Heat Transfer	3	38
GN	204	Practical Speaking	2	20
GN	220	Technical Report Writing	2	20
IT	104	Industrial Organization and Production	4	40
			18	

Fourth Semester

Course	No.	Course Title	Credit	Fees
CM	252	Industrial Chemistry: Quantitative	3	$50
CM	280	Non-Ferrous Metallurgy	2	20
CM	284	Metallography	3	49
DM	284	Instrumentation	3	39
GN	64	Physical Education	0	6–20
GN	260	Economics of Industry	2	20
IT	152	Human Relations in Industry	2	20
			15	

DRAFTING AND MECHANICAL TECHNOLOGY

Associate Technical Aide Diploma

The program in Drafting and Mechanical Technology has been developed with two options: Option A, Mechanical, and Option B, Production Planning. The student may elect either option during his second year.

Emphasis is placed upon courses in drafting and design, industrial materials and processes, and the related courses in mathematics, physics, and chemistry. Also included are courses dealing with fundamentals of industrial management and with some of the historical, economic, and human relation aspects of our American industrial life, all related to the individual.

Option A, Mechanical, is designed to prepare students primarily for technological services in drafting and design departments, mechanical maintenance divisions, testing and inspection laboratories, and related industrial production units. This field of specialization stresses the fundamentals of mechanics and mechanisms as applied to industrial problems.

Option B, Production Planning, is designed to prepare students primarily for technological services in tool engineering involving the selection of methods, tools, and machines for economical production.

Satisfactory completion of the courses listed for either option is required for the Associate Technical Aide diploma in Drafting and Mechanical Technology.

Course descriptions are given in the back of this catalog.

First Semester

Course	No.	Course Title	Credit	Fees
DM	108	Technical Drawing	2	$33
GN	104	English Grammar and Composition	2	20
GN	120	Psychology	2	20
PS	112	Mathematics: Geometry and Algebra	4	40
PS	120	Introductory Chemistry	3	42
PS	132	Physics: Mechanics and Electricity	4	56
			17	

Second Semester

DM	156	Graphical Computations	2	$33
DM	180	Materials and Processes	3	30
~~GN~~	~~52~~	~~Physical Education~~	~~0~~	6–20
GN	152	Fundamentals of Technical Writing	2	20
GN	232	Democratic Government	2	20
PS	164	Mathematics: Trigonometry and Algebra	4	40
PS	168	Slide Rule	1	10
PS	172	Physics: Electricity, Heat, Sound and Light	4	56
			18	

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* Production Planning, Option B., has been developed in collaboration with the educational committee of the American Society of Tool Engineers and is particularly adapted to the student who wishes a fundamental, yet versatile program of technical studies.

OPTION A MECHANICAL

Third Semester

DM	204	Machine and Tool Drawing	2	$35
DM	224	Mechanics: Statics and Dynamics	4	40
DM	232	Elementary Machine Design	3	45
GN	204	Practical Speaking	2	20
GN	220	Technical Report Writing	2	20
IT	104	Industrial Organization and Production	4	40
			17	

Fourth Semester

DM	252	Strength of Materials	4	$40
DM	260	Mechanism	4	56
DM	268	Advanced Machine Design	4	56
~~GN~~	~~64~~	~~Physical Education~~	~~0~~	6–20
GN	260	Economics of Industry	2	20
IT	152	Human Relations in Industry	2	20
			16	

OPTION B PRODUCTION PLANNING*

Third Semester

DM	204	Machine and Tool Drawing	2	$35
DM	208	Elementary Die Design	3	45
GN	204	Practical Speaking	2	20
GN	220	Technical Report Writing	2	20
IT	104	Industrial Organization and Production	4	40
IT	224	Production Planning and Control	4	49
			17	

Fourth Semester

DM	272	Jig and Fixture Design	3	$45
DM	276	Advanced Tool Design	4	56
GN	64	Physical Education	0	6–20
GN	260	Economics of Industry	2	20
IT	152	Human Relations in Industry	2	20
IT	284	Production Procedures	4	40
IT	292	Production Cost Analysis	2	20
			17	

An instructor discusses a design problem with Institute students.

ELECTRICAL TECHNOLOGY

Associate Technical Aide Diploma

The program in Electrical Technology with options in Industrial Electricity, and Radio and Television follows a common plan of study during the first year and provides specialization in the second year. Included, in addition to technical subjects, are courses dealing with fundamentals of industrial management and with some of the historical, economic, and human-relations aspects of our American industrial life, all related to the individual.

Option A, Industrial Electricity, is designed to prepare students primarily for technological services with electrical utilities, with manufacturers of electrical equipment, in electrical maintenance and instrument departments of industrial plants, and in related positions. This major field of specialization stresses the application of direct- and alternating-current theory to electrical machinery and instruments. Emphasis is placed upon courses in circuit theory, machinery, electrical measurements, electronic control, and related courses in mathematics, physics, and chemistry.

Option B, Radio and Television, is designed to prepare students primarily for technological services with equipment manufacturers and for the installation and maintenance of receivers. Emphasis is placed upon courses in circuit theory, receiver circuits and fundamentals, electrical measurements, and related courses in mathematics, physics, and chemistry.

Satisfactory completion of the courses listed for either option is required for the Associate Technical Aide diploma in Electrical Technology.

Course descriptions are given in the back of this catalog.

First Semester

Course	No.	Course Title	Credit	Fees
DM	108	Technical Drawing	2	$33
GN	104	English Grammar and Composition	2	20
GN	120	Psychology	2	20
PS	112	Mathematics: Geometry and Algebra	4	40
PS	120	Introductory Chemistry	3	42
PS	132	Physics: Mechanics and Electricity	4	56
			17	

Second Semester

ET	172	Electrical Circuits	5	$61
GN	52	Physical Education	0	6–20
GN	152	Fundamentals of Technical Writing	2	20
GN	232	Democratic Government	2	20
PS	164	Mathematics: Trigonometry and Algebra	4	40
PS	168	Slide Rule	1	10
PS	172	Physics: Electricity, Heat, Sound and Light	4	56
			18	

OPTION A INDUSTRIAL ELECTRICITY

Third Semester

ET	204	Electronics	4	$50
ET	216	Electrical Measurements	4	50
GN	204	Practical Speaking	2	20
GN	220	Technical Report Writing	2	20
IT	104	Industrial Organization and Production	4	40
			16	

Fourth Semester

ET	252	Electrical Power Blueprints and Diagrams	2	$29
ET	260	Electrical Machines	5	61
ET	268	Control of Motors	4	40
GN	64	Physical Education	0	6–20
GN	260	Economics of Industry	2	20
IT	152	Human Relations in Industry	2	20
			15	

OPTION B RADIO AND TELEVISION

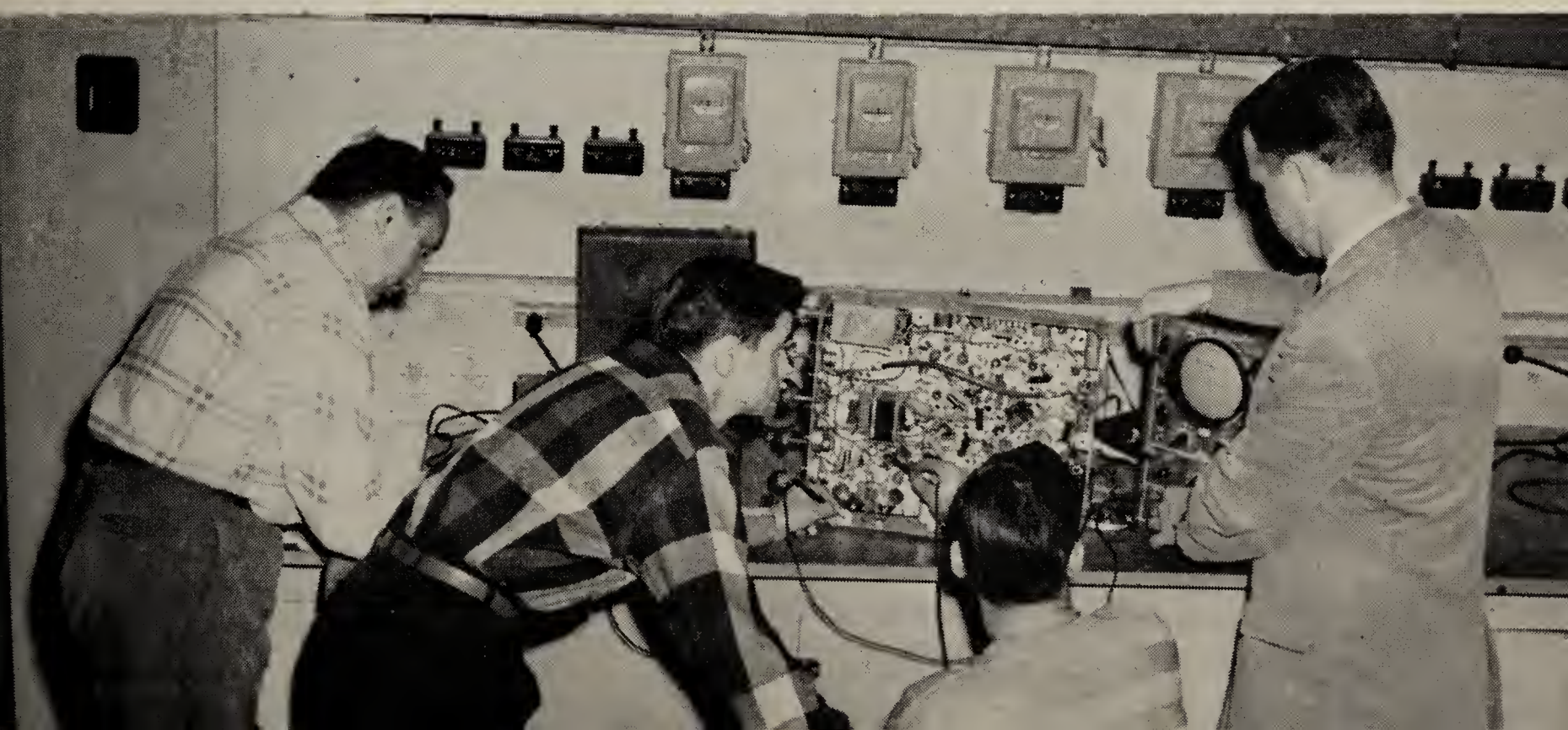
Third Semester

ET	204	Electronics	4	$50
ET	216	Electrical Measurements	4	50
GN	204	Practical Speaking	2	20
GN	220	Technical Report Writing	2	20
IT	104	Industrial Organization and Production	4	40
			16	

Fourth Semester

ET	280	Radio	5	$61
ET	284	Television	5	61
ET	288	Circuit Diagrams	2	29
GN	64	Physical Education	0	6–20
GN	260	Economics of Industry	2	20
IT	152	Human Relations in Industry	2	20
			16	

Laboratory work helps students understand electrical theory.



INDUSTRIAL TECHNOLOGY

Associate Technical Aide Diploma

This major field of specialization is designed to prepare students primarily for technological services in the industrial engineering areas of production planning and control, plant layout, quality control, job evaluation, and cost analysis. It also covers the essentials of management with which foremen, supervisors, and administrative personnel in general are concerned.

Typical jobs are time-study man, methods planner, production control clerk, stock supervisor, cost analyst, job analyst, and personnel interviewer.

Emphasis is placed upon courses in motion and time study, job evaluation, wage incentives, production and operation planning, plant layout, industrial safety, and courses in mathematics, physics, and chemistry.

Also included are courses dealing with some of the historical, economic and human relations aspects of our American industrial life, all related to the individual.

Satisfactory completion of the courses listed is required for the Associate Technical Aide diploma in Industrial Technology.

Course descriptions are given in the back of this catalog.

First Semester

Course No.		Course Title	Credit	Fees
GN	104	English Grammar and Composition	2	$20
GN	120	Psychology	2	20
IT	104	Industrial Organization and Production	4	40
PS	112	Mathematics: Geometry and Algebra	4	40
PS	132	Physics: Mechanics and Electricity	4	56
			16	

Second Semester

DM	180	Materials and Processes	3	$30
GN	52	Physical Education	0	6–20
GN	152	Fundamentals of Technical Writing	2	20
GN	232	Democratic Government	2	20
IT	152	Human Relations in Industry	2	20
PS	164	Mathematics: Trigonometry and Algebra	4	40
PS	168	Slide Rule	1	10
PS	172	Physics: Electricity, Heat, Sound and Light	4	56
			18	

Third Semester

DM	108	Technical Drawing	2	$33
GN	204	Practical Speaking	2	20
GN	220	Technical Report Writing	2	20
IT	212	Industrial Safety	2	20
IT	224	Production Planning and Control	4	49
PS	120	Introductory Chemistry	3	42
PS	204	Quality Control	2	20
			17	

Fourth Semester

GN	64	Physical Education	0	$6–20
GN	260	Economics of Industry	2	20
GN	264	Conference Speaking	2	20
IT	260	Motion and Time Study	3	37
IT	268	Plant Layout	3	39
IT	272	Job Evaluation	2	20
IT	280	Wage Incentives	2	20
IT	292	Production Cost Analysis	2	20
			16	

INSTRUCTION

Professor Daugherty in charge.

BUILDING CONSTRUCTION

Assistant Professor: Scholl
Instructors: Gumpper, Lindley, Smith

CHEMICAL AND METALLURGICAL

Assistant Professor: Relich

DRAFTING AND MECHANICAL

Assistant Professors: Cox, Lisarelli, Zacher
Instructors: Beauchamp, Stoelk

ELECTRICAL

Associate Professor: Wisner
Assistant Professors: R. Anderson, Rhodes
Instructor: Rapalski

GENERAL STUDIES

Associate Professor: Williamson
Assistant Professors: Ernst, Hays, Nunn, Poling
Instructor: Foster

INDUSTRIAL

Instructors: Benedict, Bradford, Lutz, Schmid

PHYSICAL SCIENCES

Associate Professor: Adams.
Assistant Professors: Flannery, Relich, Schlosser
Instructor: Rainey

DESCRIPTION OF COURSES

Courses listed on the following pages will, for the most part, be offered during the academic year 1955-56. For each course the first line of the description should be interpreted as follows: first comes the official number of the

course; second, its special title; third, the number of class, laboratory and credit hours; and fourth, the fee for the course. For example, the following line:

BC 288. ELEMENTARY SURVEYING. Class 1, Lab. 3, cr. 2 $31

indicates that Building Construction 288 is Elementary Surveying, meets one hour in class and three hours in laboratory per week, gives 2 semester hours credit and costs $31.

Courses numbered from

0–99	primarily for industrial groups not working for Technical Institute diploma
100–199	primarily for first year students working toward an Associate Technical Aide diploma
200–299	primarily for second year students working toward an Associate Technical Aide diploma
300–399	primarily for students with Associate Technical diploma working toward Technical Aide diploma

Building Construction Technology

BC 104. PLAN READING. Class 1, cr. 1 $10
Conventional representations as used in building trades, plans and simple specifications: methods of showing plans, elevations, sections and dimensions; symbols used to depict materials; definitions of common terms occurring on building plans; specifications as written for simple structures.

BC 116. ARCHITECTURAL DRAWING. Lab. 6, cr. 2 $35
Introduction to architectural drawing including use of instruments, lettering, orthographic projection, isometric views, and simple working drawings.

BC 152. FRAME CONSTRUCTION. Lab. 6, cr. 2 $35
Must be preceded by BC 116.
Simple wood-frame structures, such as houses, framing members and details; elementary design problems.

BC 164. BUILDING MATERIALS. Class 3, cr. 3 $30
Must be preceded by PS 120.
Materials and items used in building construction.

BC 204. BUILDING REGULATIONS. Class 2, cr. 2 $20
Building codes, ordinances, and regulations with emphasis on those for structures in Indiana.

BC 216. MASONRY CONSTRUCTION. Lab. 6, cr. 2 $35
Must be preceded by BC 116.
Simple masonry structures, such as small stores; analysis of design, strength, and construction details.

BC 232. PERSPECTIVE DRAWING. Lab. 3, cr. 1 $18
Must be preceded by BC 116.
Simple problems in one-, two-, and three-point perspective systems.

BC 244. MECHANICS OF MATERIALS. Class 2, Lab. 3, cr. 3 $37
Must be preceded by PS 164, PS 132.
Stress and strain; properties of materials; riveted joints; shear and movement; bending and deflection of beams.

BC 252. STRUCTURAL DRAFTING. Lab. 6, cr. 2 $36
Must be preceded by BC 116, BC 244, DM 156.
Detailing simple structural steel, reinforced concrete, and wood structures; elementary design principles.

BC 264. FREEHAND DRAWING. Lab. 6, cr. 2 $35
Must be preceded by BC 116.
A beginning course in freehand drawing with emphasis toward architectural delineation.

BC 272. SPECIFICATIONS AND CONTRACT DOCUMENTS. Class 4, cr. 4 $40
Must be preceded by BC 152, BC 216, GN 164.
Preparation of general conditions and major phases of building construction specifications, agreements, contracts, liens, and bonds.

BC 280. QUANTITY SURVEY. Class 2, Lab. 3, cr. 3 $37
Must be preceded by BC 152, BC 216, BC 164.
Approximate and detailed methods of estimating materials and labor required to erect a building.

BC 288. ELEMENTARY SURVEYING. Class 1, Lab. 3, cr. 2 $31
Must be preceded by PS 164.
Plane surveying using 100-ft. steel tape, level, and transit.

BC 296. HISTORY OF ARCHITECTURE. Class 2, cr. 2 $20
Must be preceded by BC 104.
Survey of ancient and modern forms of architecture.

BC 304. COLOR IN BUILDINGS. Lab. 6, cr. 2 $35
Basic principles of color origin, design, combinations, terminology, and application.

BC 320. BUILDING FINANCE. Class 2, cr. 2 $20
Legal and financial regulations and restrictions affecting financial aspects of building construction.

BC 332. ADVANCED SURVEYING. Class 1, Lab. 3, cr. 2 $31
Must be preceded by BC 288.
Preliminary and final location surveys including curves, profiles, slope stakes, and yardage estimates.

BC 340. CONSTRUCTION METHODS. Class 4, cr. 4 $40
Must be preceded by BC 152, BC 216.
Methods used in erecting buildings.

BC 344. WIRING STANDARDS AND UNDERWRITERS' CODE. Class 3, cr. 3 $30
An investigation of the legal and technical requirements and practices in wiring machinery, equipment, and buildings; insurance codes; building codes; underwriters' specifications.

BC 348. PIPING LAYOUT AND DESIGN. Class 3, Lab. 3, cr. 4 $48
Design of industrial process piping and controls.

BC 356. HEATING, VENTILATING, AND AIR CONDITIONING. Class 4, cr. 4 $40
Must be preceded by PS 172.
Types of heating systems, heat transmission and insulation, heat exchangers, fans and ducts, air-vapor mixtures, air conditioning.

BC 360. REFRIGERATION. Class 4, cr. 4 $40
Must be preceded by PS 172.
Basic principles of refrigeration and their application to the installation, operation, and maintenance of refrigeration equipment.

BC 364. ACCOUSTICS OF BUILDINGS. Class 4, cr. 4 $40
Must be preceded by PS 172.
Principles of acoustics as applied to buildings.

BC 372. SURVEY OF CITY PLANNING. Class 4, cr. 4 $40
Must be preceded by BC 288.
Community planning problems, such as street planning, zoning, subdivision layout.

BC 396. BUILDING CONSTRUCTION TECHNOLOGY.
Class 2-4 and/or Lab. 3-9, cr. 2 to 4
Fee will be charged at the rate of $10 per class hour and $5 per lab. hour.
Hours as arranged with staff.
Primarily for students who have completed requirements for the Associate Technical Aide diploma.

Chemical and Metallurgical Technology

CM 152. INDUSTRIAL CHEMISTRY: FUNDAMENTALS.
Class 1, Lab. 3, cr. 2 $27
Must be preceded by PS 112, PS 120.
Quantitative interpretations of chemical equations by numerical problems and practical application to industrial processes, using the principles of Introductory Chemistry.

CM 160. INDUSTRIAL CHEMISTRY: PETROLEUM.
Class 1, Lab. 3, cr. 2 $29
Must be preceded by PS 112, PS 120.
Study of the simpler hydrocarbons generally associated with petroleum.

CM 176. QUALITY AND PRODUCT CONTROL. Class 1, Lab. 3, cr. 2 $32
Must be preceded or accompanied by CM 160.
Physical and chemical testing of petroleum products, utilization of results for control of plant operations and product quality.

CM 184. FERROUS METALLURGY. Class 3, cr. 3 $30
Must be preceded or accompanied by CM 152.
Appliances and methods used in the reduction, refining, and shaping of ferrous alloys.

CM 204. INDUSTRIAL CHEMISTRY: ORGANIC. Class 2, Lab. 3, cr. 3 $42
Must be preceded by CM 160.
Emphasis on class reactions and practical applications in the major organic chemical industries.

CM 212 INDUSTRIAL CHEMISTRY: QUALITATIVE.
Class 1, Lab. 6, cr. 3 $50
Must be preceded by PS 120, PS 164.
Systematic semimicro analysis with emphasis upon modern industrial techniques.

CM 216. PETROLEUM REFINERY OPERATIONS I.
Class 2, Lab. 3, cr. 3 $41
Must be preceded by CM 257 and preceded or accompanied by DM 240.
Introduction to fundamental petroleum refinery operations and advanced petroleum chemistry.

CM 220. GENERAL METALLURGY. Class 3, cr. 3 $30
Must be preceded by CM 152.
Fundamentals common to all production metallurgy; refining and forming processes, constitution diagrams, alloys, testing

CM 228. PHYSICAL METALLURGY. Class 3, Lab. 3, cr. 4 $51
Must be preceded by CM 184, PS 172.
Basic principles: solid solutions, intermetallic compounds, equilibrium diagrams, plastic deformation, recrystallization and grain growth, heat treatment, and phase changes in the solid state.

CM 252. INDUSTRIAL CHEMISTRY: QUANTITATIVE
Class 1, Lab. 6, cr. 3 $50
Must be preceded by CM 212.
An introduction to gravimetric, titrimetric and potentiometric methods applicable to modern industrial practices.

CM 256. INDUSTRIAL CHEMISTRY: PHYSICS. Class 2, Lab. 6, cr. 4 $58
Must be preceded or accompanied by CM 252.
General properties of matter phenomena of solutions, electrochemistry, thermochemistry, chemical statics and dynamics.

CM 257. INDUSTRIAL CHEMISTRY: PHYSICS, PART I.
Class 1, Lab. 3, cr. 2 $29
Must be preceded or accompanied by CM 252.
First half of CM 256.

CM 258. INDUSTRIAL CHEMISTRY: PHYSICS, PART II.
Class 1, Lab. 3, cr. 2 $29
Must be preceded by CM 257.
Second half of CM 256.

CM 264. CHEMICAL UNIT PROCESSES. Class 2, Lab. 3, cr. 3 $41
Must be preceded by CM 152, CM 204, CM 212, DM 108, PS 172.
Major industrial chemical processes, equipment and machinery; manufacture, transportation, and uses of selected chemicals; unit processes and flow diagrams.

CM 280. NON-FERROUS METALLURGY. Class 2, cr. 2 $20
Must be preceded or accompanied by CM 152.
Fundamentals of production metallurgy with specific consideration of the methods employed in the reduction and refining of selected non-ferrous metals.

CM 284. METALLOGRAPHY. Class 1, Lab. 6, cr. 3 $49
Must be preceded by CM 228.
Preparaton and microscopic examinations of metals.

CM 304. LABORATORY TECHNIQUES. Lab. 6, cr. 2 $40
Must be preceded by CM 252.
Special laboratory analysis techniques.

CM 312. PETROLEUM REFINERY PRACTICES. Class 4, cr. 4 $40
Survey of the petroleum refining industry.

CM 320. ADVANCED NON-FERROUS METALLURGY. Class 3, cr. 3 $30
Must be preceded by CM 280, CM 284.
Continuation of CM 280.

CM 324. ADVANCED FERROUS METALLURGY. Class 3, cr. 3 $30
Must be preceded by CM 284.
Continuation of CM 184 with emphasis on physical and chemical considerations.

CM 328. ADVANCED PHYSICAL METALLURGY. Class 3, cr. 3 $30
Must be preceded by CM 284.
Continuation of CM 228.

CM 344. INSPECTION AND TESTING OF METALS. Class 1, Lab. 3, cr. 2 $30
Must be preceded by CM 284.
Common methods employed in the inspection of metals.

CM 384. ADVANCED METALLOGRAPHY. Class 1, Lab. 6, cr. 3 $49
Must be preceded by CM 284.
Heat treatment and its effects upon the microstructure and properties of steel.

CM 396. CHEMICAL AND METALLURGICAL TECHNOLOGY.
Class 2-4 and/or Lab. 3-9, cr. 2 to 4
Fee will be charged at the rate of $10 per class hour and $5 per lab. hour. Hours as arranged with staff.
Primarily for students who have completed the requirements for the Associate Technical Aide diploma.
Special studies in Chemical and Metallurgical Technology.

Drafting and Mechanical Technology

DM 108. TECHNICAL DRAWING. Lab. 6, cr. 2 $33
Must be preceded by PS 112.
Introduction to technical drawing, including use of instruments, lettering and orthographic projection. Preparation of working detail and assembly drawings from simple layouts with emphasis upon industrial practices. Primarily intended to develop the basic skills and fundamentals of industrial drafting.

DM 156. GRAPHICAL COMPUTATIONS. Lab. 6, cr. 2 $33
Must be preceded by BC 116 or DM 108 and preceded or accompanied by PS 164.
Descriptive and analytic geometry principles applied to the solution of engineering problems; intersections and development of planes and solids; layout of objects in space; and clearance.

DM 180. MATERIALS AND PROCESSES. Class 3, cr. 3 $30
Applications and characteristics, both physical and chemical, of the materials most commonly used in industry; the mechanical processes by which materials may be shaped or formed.

DM 204. MACHINE AND TOOL DRAWING. Lab. 6, cr. 2 $35
Must be preceded by DM 156, DM 180.
Preparation of complete working drawings, from layouts, for interchange-

1954 Technical Institute graduates assembled for graduat

able manufacture; computation of fits, limit dimensions, and tolerances; tool drawing principles and methods; fundamentals of cutting tools and gages.

DM 208. ELEMENTARY DIE DESIGN. Class 1, Lab. 6, cr. 3 $45
Must be preceded or accompanied by DM 204.
Fundamental principles of the design and construction of piercing, blanking, forming, drawing, progressive, and compound dies.

DM 224. MECHANICS: STATICS AND DYNAMICS. Class 4, cr. 4 $40
Must be preceded by PS 132, PS 164.
Forces acting on rigid bodies at rest and in motion embracing vectors, force and moment laws of equilibrium for various force systems, friction, centroids, center of gravity, moments of inertia; kinematics and kinetics of rectilinear, curvilinear, and rotational motion; work, energy, power, impulse, and momentum.

DM 232. ELEMENTARY MACHINE DESIGN. Class 1, Lab, 6, cr. 3 $45
Must be preceded by DM 180, and preceded or accompanied by DM 224.
Design and experimental procedure, calculation of machine members, and elements of testing.

DM 240. HEAT TRANSFER. Class 2, Lab. 3, cr. 3 $38
Must be preceded by PS 164, PS 172.
Fundamentals of heat transfer as applied to furnaces, heat exchangers, steam generators, cooling towers, evaporators, and distilling equipment.

DM 252. STRENGTH OF MATERIALS. Class 4, cr. 4 $40
Must be preceded by DM 224.
Stress and strain; riveted and welded joints; torsion; shear; bending and deflection of beams; combined stresses; columns.

DM 260. MECHANISM. Class 2, Lab. 6, cr. 4 $56
Must be preceded by DM 204, DM 224.
Displacements, motions, and velocities; linkages, gears, cams, and flexible connections.

exercises in the Hall of Music on the Lafayette campus.

DM 268. ADVANCED MACHINE DESIGN. Class 2, Lab. 6, cr. 4 $56
Must be preceded by DM 232 and preceded or accompanied by DM 252.
Proportioning of machine parts according to the laws of mechanics. Functional and economic characteristics of machine elements.

DM 272. JIG AND FIXTURE DESIGN. Class 1, Lab. 6, cr. 3 $45
Must be preceded by DM 204.
Fundamental principles of the design and construction of drill and combination jigs, and milling, reaming, and tapping fixtures.

DM 276. ADVANCED TOOL DESIGN. Class 2, Lab. 6, cr. 4 $56
Must be preceded by DM 208, and preceded or accompanied by DM 272.
Continuation of DM 208 and 272.

DM 280. PIPING, VALVES, AND PUMPS. Class 1, Lab. 3, cr. 2 $27
Must be preceded by PS 132 and preceded or accompanied by PS 164.
Basic principles of the flow and equipment used in transfer of fluids.

DM 284. INSTRUMENTATION. Class 2, Lab. 3, cr. 3 $39
Must be preceded by PS 172.
Basic principles of pyrometry and fluid metering; instruments used in the measurement and control of temperature, pressure, level, and flow of fluids.

DM 296. MACHINE TOOL LABORATORY. Lab. 3, Cr. 1 $30
Must be preceded or accompanied by DM 180.
Two weeks course consisting of 48 laboratory hours of instruction offered at the Lafayette campus on a full-time basis or on the eight Saturdays during the regular summer session.
To acquaint students with the uses and limitations of general purpose and production machines as well as integrating the processes of foundry welding, heat treating, and inspection into production planning.

DM 304. FREEHAND TECHNICAL SKETCHING. Lab. 3, cr. 1 $18
Must be preceded by DM 108.
A first course in surface rendering and the representation of objects by means of isometric, oblique, and perspective drawing.

DM 320. GAGE DESIGN. Class 1, Lab. 6, cr. 3 $45
Must be preceded by DM 204.
Design of gages for interchangeable manufacture.

DM 332. HYDRAULIC PRESSURE CIRCUITS. Class 3, cr. 3 $30
Must be preceded by DM 108, PS 112.
Application of hydraulic power to machine tools and other equipment.

DM 340. FLOW METERS. Class 2, Lab. 3, cr. 3 $39
Must be preceded by IT 304.
Principles of flow measurement, displacement and area-type meters, dismantling, and maintenance of principal types of meters.

DM 396. DRAFTING AND MECHANICAL TECHNOLOGY.
Class 2-4 and/or Lab, 3-9; cr. 2 to 4
Fee will be charged at the rate of $10 per class hour and $5 per lab. hour.
Hours as arranged with staff.
Primarily for students who have completed the requirements for the Associate Technical Aide diploma.
Special studies in Drafting and Mechanical Technology.

Electrical Technology

ET 172. ELECTRICAL CIRCUITS. Class 4, Lab. 3, cr. 5 $61
Must be preceded or accompanied by PS 164, PS 172.
Nature of direct and alternating current electricity and practical applications of theory to concepts involving: resistance, simple circuits, power, power factor, reactance, impedance, simple d-c and a-c circuit calculations, complex notation.

ET 173. ELECTRICAL CIRCUITS, PART I. Class 2, Lab. 2, cr. 2⅔ $34
Must be preceded or accompanied by PS 164, PS 172.
First half of ET 172.

ET 174. ELECTRICAL CIRCUITS, PART II. Class 2, Lab. 2, cr. 2⅔ $34
Must be preceded by ET 173.
Second half of ET 172.

ET 204. ELECTRONICS. Class 3, Lab. 3, cr. 4 $50
Must be preceded by ET 172.
A study of the principles of operation and industrial applications of the more common types of vacuum and gas tubes, photo-electric cells, and cathode ray tubes. The simple basic circuits using these tubes are studied and their applications emphasized.

ET 216. ELECTRICAL MEASUREMENTS. Class 3, Lab. 3, cr. 4 $50
Must be preceded by ET 172.
A study of the principles of operation and the construction of direct and alternating current measuring instruments. Careful consideration is given to the choice of the best instruments, their possible errors, the means of calibration, and their correct use in industrial situations.

ET 217. ELECTRICAL MEASUREMENTS, PART I.
Class 1½, Lab. 2, cr. 2⅓ $28
Must be preceded by ET 172.
First half of ET 216.

ET 218. ELECTRICAL MEASUREMENTS, PART II,
Class 1½, Lab. 2, cr. 2⅓ $28
Must be preceded by ET 217,
Second half of ET 216.

ET 252. ELECTRIC POWER BLUEPRINTS AND DIAGRAMS.
Class 1, Lab. 3, cr. 2 $29
Must be preceded by DM 108.
A practical study of symbols and standards used on electrical blue-prints and wiring diagrams primarily for control circuits.

ET 260. ELECTRICAL MACHINES. Class 4, Lab. 3, cr. 5 $61
Must be preceded by ET 172.
Particular emphasis is placed on operational theory and application of both A.C. and D.C. machines in industry. Transformers and their roles in industry are studied and industrial electrical systems are analyzed.

ET 261. ELECTRICAL MACHINES, PART I. Class 2, Lab. 2, cr. 2⅔ $34
Must be preceded by ET 172.
First half of ET 260.

ET 262, ELECTRICAL MACHINES, PART II. Class 2, Lab. 2, cr. 2⅔ $34
Must be preceded by ET 261.
Second half of ET 260.

ET 268. CONTROL OF ELECTRIC MOTORS. Class 4, cr. 4 $40
Must be preceded or accompanied by ET 260.
Accelerating relays, protective relays, circuit breakers, controllers, and contactors used in industry are studied. Circuit diagrams for starting, accelerating and regulating industrial drives are thoroughly analyzed. Controls for adjustable voltage systems are discussed. Dynamic crane and traction controls are included in this course,

ET 280. RADIO FUNDAMENTALS. Class 4, Lab. 3, cr. 5 $61
Must be preceded by ET 204.
Structural details and elementary principles of operation of rectifiers, amplifiers of various types, modulation, demodulation, receivers and their characteristics.

ET 281. RADIO FUNDAMENTALS, PART I. Class 2, Lab. 2, cr. 2⅔ $34
Must be preceded by ET 204.
First half of ET 280.

ET 282. RADIO FUNDAMENTALS, PART II. Class 2, Lab. 2, cr. 2⅔ $34
Must be preceded by ET 281.
Second half of ET 280.

ET 284. TELEVISION FUNDAMENTALS. Class 4, Lab. 3, cr. 5 $61
Must be preceded or accompanied by ET 280.
Structural details and elementary principles of operation of television equipment.

ET 285. TELEVISION FUNDAMENTALS, PART I.
Class 2, Lab. 2, cr. 2⅔ $34
Must be preceded or accompanied by ET 280.
First half of ET 284.

ET 286. TELEVISION FUNDAMENTALS, PART II.
Class 2, Lab. 2, cr. 2⅔ $34
Must be preceded by ET 285.
Second half of ET 284.

ET 288. RADIO, TELEVISION CIRCUIT DIAGRAMS.
Class 1, Lab. 3, cr. 2 $29
Must be preceded by DM 108, and preceded or accompanied by ET 280.
A practical study of symbols and standards used on radio and television circuit diagrams.

ET 312. POWER GENERATION AND TRANSMISSION. Class 3, cr. 3 $30
Must be preceded by ET 260.
Details of generating station equipment and transmission line systems.

ET 320. POWER DISTRIBUTION. Class 3, cr. 3 $30
Must be preceded by ET 260.
Details of bus systems, circuit breakers, protective relays, and the part they play in the power distribution system of an industrial plant. National Electric Code.

ET 340. APPLICATIONS OF ELECTRONICS TO INDUSTRY.
Class 4, Lab. 3, cr. 5 $61
Must be preceded by ET 204.
Circuits using electron tubes to control or measure; such as resistance welding, elevator leveling, counting, sorting, high-frequency heating, photometric measurements.

ET 396. ELECTRICAL TECHNOLOGY. Class 2-4 and/or Lab. 3-9, cr. 2 to 4
Fee will be charged at the rate of $10 per class hour and $5 per lab. hour.
Hours as arranged with staff.
Primarily for students who have completed the requirements for the Associate Technical Aide diploma.
Special studies in Electrical Technology.

General Studies

GN 52. PHYSICAL EDUCATION. Cr. 0 $6 to $20
In centers where facilities are available, students may avail themselves of instruction in intramural activities.

GN 64. PHYSICAL EDUCATION. Cr. 0 $6 to $20
In centers where facilities are available, students may avail themselves of instruction in intramural activities.

GN 104. ENGLISH GRAMMAR AND COMPOSITION. Class 2, cr. 2 $20
A concentrated view of basic principles of grammar with use of these principles in original written composition. Written and oral work will be stressed early in this course in order that both fields of communication be closely integrated prerequisite to the demands of Technical Report Writing.

GN 120. PSYCHOLOGY. Class 2, cr. 2 $20
Selected fundamentals of psychology and their application to the solution of industrial personnel problems.

GN 152. FUNDAMENTALS OF TECHNICAL WRITING. Class 2, cr. 2 $20
Must be preceded by GN 104.
An introduction to technical writing with emphasis on the techniques of composition and their implementation in letters, short reports, abstracts, etc.

GN 204. FUNDAMENTALS OF PRACTICAL SPEAKING. Class 2, cr. 2 $20
Organization and presentation of material, voice and physical delivery, audience reaction.

GN 220 TECHNICAL REPORT WRITING. Class 2, cr. 2 $20
Must be preceded by GN 152.
Extensive application of the principles of good writing in industrial reporting with emphasis on the techniques of presenting information graphically as well as in a clear concise written form.

GN 232. DEMOCRATIC GOVERNMENT. Class 2, cr. 2 $20
Democratic processes in government and the practices within which they function.

GN 260. ECONOMICS OF INDUSTRY. Class 2, cr. 2 $20
Economic principles as applied to major industrial problems.

GN 264. CONFERENCE SPEAKING. Class 2, cr. 2 $20
Must be preceded by GN 204.
Training and practice in conducting and participating in small group conferences, shop committees, instructional groups, problem-solving groups.

GN 304. URBAN SOCIOLOGY. Class 3, cr. 3 $30
Analysis of the causes and effects of the expansion of industrial cities.

GN 312. HISTORICAL REVIEW OF AMERICAN INSTITUTIONS. Class 2, cr. 2 $20
Nature of government, democracy, the Constitution, finance, commerce, public works, and the general welfare.

GN 320. HISTORY OF INDUSTRIAL EXPANSION. Class 2, cr. 2 $20
Place of industry in the development of America.

GN 328. GEOGRAPHY OF RAW MATERIALS. Class 2, cr. 2 $20
Sources of strategic materials and the resulting effect upon industry and civilization.

GN 340. LABOR PROBLEMS. Class 3, cr. 3 $30
Problems of workers with possible solutions as suggested by organized labor and employers. Regulations concerning management and labor.

GN 348. ADVANCED PRACTICAL SPEAKING. Class 2, cr. 2 $20
Must be preceded by GN 204.
Argumentation, instructional talks, parliamentary procedure. Emphasis is placed on organization of facts, use of forms of support, and clarity of description.

Industrial Technology

IT 104. INDUSTRIAL ORGANIZATION AND PRODUCTION. Class 4, cr. 4 $40
A detailed survey of organizational structures; operational, financial, marketing, and accounting activities; duties of management, planning, control, personnel, safety, wages, policy and human factors necessary for effective management.

IT 152. HUMAN RELATIONS IN INDUSTRY. Class 2, cr. 2 $20
Must be preceded by GN 120, IT 104.
A study of industrial personnel problems, Relations of the supervisor and his men.

IT 204. BUSINESS ORGANIZATION. Class 2, cr. 2 $20
Survey of organizational structures; operational, financial, marketing, and accounting activities; and human factors necessary for effective management of a small business.

IT 212. INDUSTRIAL SAFETY. Class 2, cr. 2 $20
Must be preceded by IT 104.
Safety fundamentals as related to the economics of accident prevention, analysis of accident causes, mechanical safeguards, fire prevention, plant housekeeping, occupational diseases, first aid, safety organization, protective equipment and the promotion of safe practices.

IT 224. PRODUCTION PLANNING AND CONTROL. Class 3, Lab. 3, cr. 4 $49
Must be preceded by DM 180, IT 104.
Pre-production planning of the most economical methods, machines, operations, and materials for the manufacture of a product. The planning, scheduling, routing, and a detailed procedure of production control.

IT 260. MOTION AND TIME STUDY. Class 2, Lab. 3, cr. 3 $37
Must be preceded by IT 104 and PS 164.
Techniques of motion and time study, process charts, operation charts, micromotion study, therbligs, and stop-watch time study.

IT 268. PLANT LAYOUT. Class 2, Lab. 3, cr. 3 $39
Must be preceded by DM 108, IT 224.
Arrangement of stock, machines, layout of aisles and use of space, and economical material handling for the highest efficiency of production.

IT 272. JOB EVALUATION. Class 2, cr. 2 $20
Must be preceded by IT 152.
A survey of the basic principles and significance of job evaluation. An analysis of current practices and techniques used in job analysis, job descriptions, and job evaluation.

IT 280. WAGE INCENTIVES. Class 2, cr. 2 $20
Must be preceded by IT 260, IT 152.
An analysis and study of various types of wage incentive plans, their significance, adaptability, effectiveness, and equitability. A systematic appraisal of the basic objectives and currently used techniques in the administration of wage incentive programs,

IT 284. PRODUCTION PROCEDURES. Class 4, cr. 4 $40
Must be preceded by IT 224.
Primarily for students enrolled in Drafting and Mechanical Technology, *Option B*.
A survey of motion and time study and the layout of production equipment.

IT 292. FUNDAMENTALS OF PRODUCTION COST ANALYSIS. Class 2, cr. 2 $20
Elements of accounting and cost accounting principles from the viewpoint of the production supervisor and non-accounting department staff member which include the analysis of financial and cost statements; survey of labor, material, and overhead costs; and a survey of the various cost systems of cost accounting, including standard costs and budgeting.

IT 304. PRINCIPLES OF MEASUREMENT. Class 2, cr. 2 $20
Instruments and methods of measuring length, areas, volume, temperature and time.

IT 312. MATERIALS HANDLING, Class 3, cr. 3 $30
Must be preceded by IT 104.
A survey of materials handling elements, the unit load, packaging, bulk handling, the economics of materials handling, improving existing handling methods, justification for handling equipment, special handling techniques, and the management of the materials handling divisions in the industrial organization.

IT 324, PRODUCTION TECHNIQUES. Class 3, cr. 3 $30
Must be preceded by IT 224.
Continuation of operation planning with emphasis upon the equipment, tools, and techniques used in mass production. Adaptation of proposed plans to conform to existing facilities.

IT 332. INDUSTRIAL ACCOUNTING FUNDAMENTALS. Class 3, cr. 3 $30
Fundamental mechanics (rules for debit and credit) of accounting, principles of account classification, business forms and procedures, financial and operating statements, and elements of cost accounting—all from the viewpoint of industrial organization.

IT 340. COST CONTROL. Class 3, cr. 3 $30
Must be preceded by IT 332, PS 164.
Standard costs, estimating costs, distribution costs, various systems of cost accounting.

IT 352. PERSONNEL MANAGEMENT. Class 3, cr. 3 $30
Must be preceded by IT 152.
Personnel department, organized labor, employees in management, employment procedures and policy, training, job evaluation, wages and wage systems, extra-industrial activities, safety and health.

IT 356. PERSONNEL PROBLEMS IN INDUSTRY. Class 2, cr. 2 $20
Analysis of selected case problems with emphasis on attitudes, philosophies, and responsibilities of supervisory personnel in relationship to the worker.

IT 360. ADVANCED MOTION AND TIME STUDY. Class 3, Lab. 3, cr. 4 $52
Must be preceded by IT 260.
Operation analysis, micromotion study, simo and possibility charts, standard data and formula construction.

IT 368. LEGISLATION AFFECTING INDUSTRIAL RELATIONS. Class 4, cr. 4 $40
Wage contracts and payments, workmen's compensation and insurance, injunctions, strikes and boycotts, and statutes affecting labor.

IT 372. SELECTION OF EMPLOYEES. Class 2, cr. 2 $20
Techniques and processes of employee selection of value to the prospective employee.

IT 380. TECHNICAL SALES. Class 3, cr. 3 $30
Must be preceded by GN 260.
Fundamntals of technical sales.

IT 396. INDUSTRIAL TECHNOLOGY. Class 2-4 and/or Lab. 3-9, cr. 2 to 4
Fee will be charged at the rate of $10 per class hour and $5 per lab. hour.
Hours as arranged with staff.
Primarily for students who have completed the requirements for the Associate Technical Aide diploma.
Special studies in Industrial Technology.

Physical Sciences

PS 112. ALGEBRA AND GEOMETRY. Class 4, cr. 4 $40
Brief review of the fundamentals of arithmetic. Study of selected topics from algebra and geometry with applications to industrial problems.

PS 113. ALGEBRA AND GEOMETRY—PART I. Class 2, cr. 2 $20
First half of PS 112.

PS 114. ALGEBRA AND GEOMETRY—PART II. Class 2, cr. 2 $20
Must be preceded by PS 113.
Second half of PS 112.

PS 120. INTRODUCTION TO INDUSTRIAL CHEMISTRY.
Class 2, Lab. 3, cr. 3 $42
Must be preceded or accompanied by PS 112.
The general basic principles of chemistry, including a study of important elements and their simpler compounds. Special emphasis is placed on industrial applications.

PS 132. PHYSICS: MECHANICS AND INTRODUCTION TO ELECTRICITY.
Lect. 2, Rec. 2, Lab. 2, cr. 4 $56
Must be preceded or accompanied by PS 112.
Work, energy, power, efficiency of simple machines; equilibrium conditions for solids, liquids, and gases; straight line and rotational motion—uniform and accelerated motion; and introduction to electricity.

PS 133. PHYSICS: MECHANICS AND INTRODUCTION TO ELECTRICITY PART I. Lect. 1, Rec. 1, Lab. 1, cr. 2 $28
Must be preceded or accompanied by PS 112.
First half of PS 132.

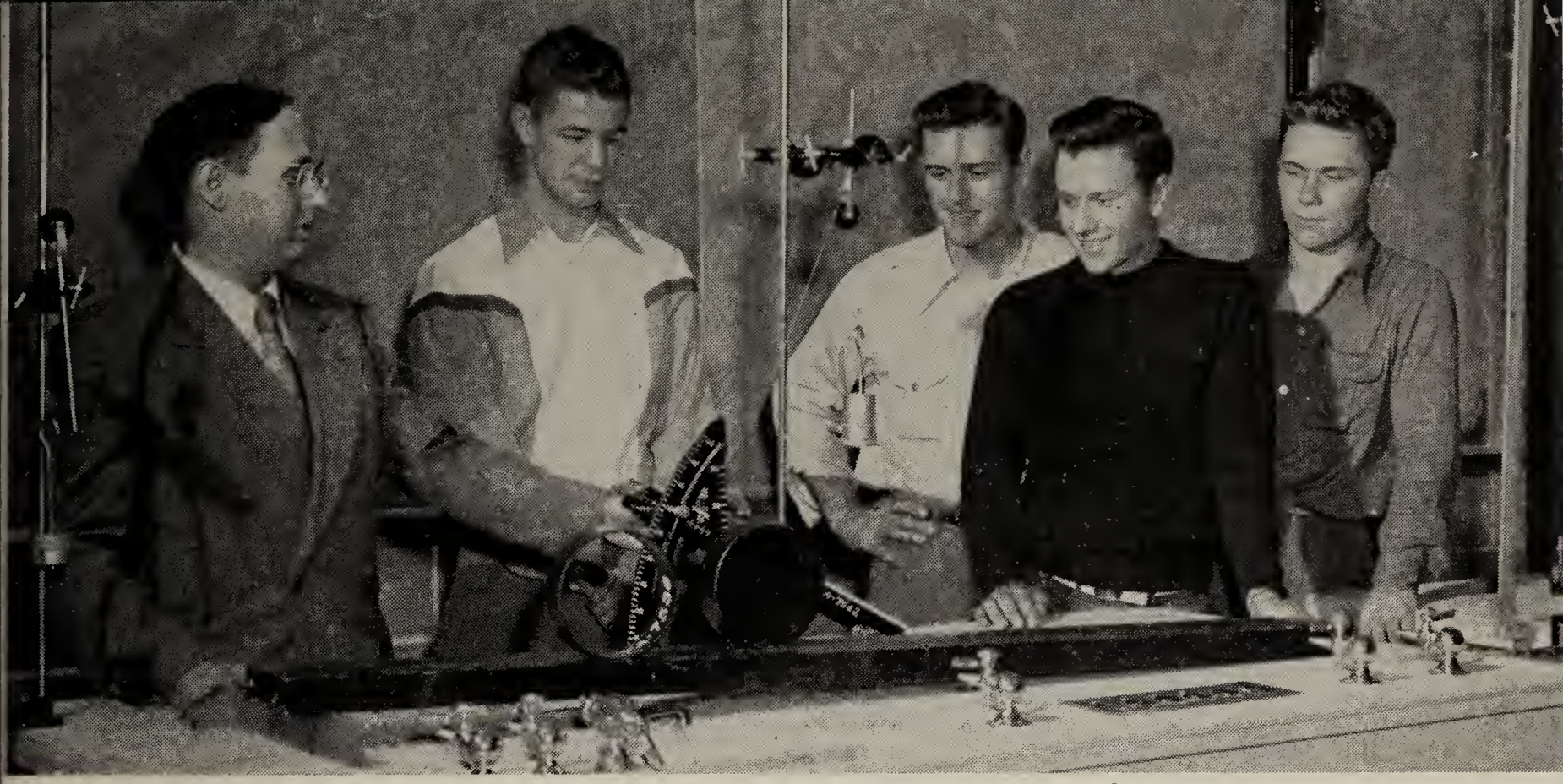
PS 134. PHYSICS: MECHANICS AND INTRODUCTION TO ELECTRICITY PART II Lect. 1, Rec. 1, Lab. 1, cr. 2 $28
Must be preceded by PS 133.
Second half of PS 132.

PS 164. ALGEBRA AND TRIGONOMETRY. Class 4, cr. 4 $40
Must be preceded by PS 112.
Fundamental concepts and techniques of algebra necessary for subsequent work in related courses and areas of employment; trigonometry related to the solution of applied problems; application of algebraic principles and trigonometry to industrial problems.

PS 165. MATHEMATICS: ADVANCED ALGEBRA. Class 2, cr. 2 $20
Must be preceded by PS 112.
First half of PS 164.

PS 166. MATHEMATICS: TRIGONOMETRY. Class 2, cr. 2 $20
Must be preceded by PS 165.
Second half of PS 164.

PS 168. SLIDE RULE. Class 1, cr. 1 $10
Must be preceded or accompanied by PS 164.
Use of the A, B, C, D, K, S, T and CI scales in the solution of problems. Proper use of the rule and accuracy are stressed.



Laboratory instruction applies principles of physics.

PS 172. PHYSICS: ELECTRICITY AND HEAT,
Lect. 2; Class 2, Lab. 2, cr. 4 $56

Must be preceded by PS 132.
Continuation of electricity. Elementary principles of heat and their engineering applications. Wave motion, sound and light.

PS 173. PHYSICS: ELECTRICITY AND HEAT—PART I.
Lect. 1, Rec. 1, Lab. 1, cr. 2 $28

Must be preceded by PS 132.
First half of PS 172.

PS 174. PHYSICS: ELECTRICITY AND HEAT—PART II.
Lect. 1, Rec. 1, Lab. 1, cr. 2 $28

Must be preceded by PS 173.
Second half of PS 172.

PS 204. FUNDAMENTALS OF QUALITY CONTROL. Class 2, cr. 2 $20
Must be preceded by PS 112, PS 164.
Frequency distributions, normal curve, average, standard deviation, standard error of the mean, $\bar{x}$ and R charts, "u" chart, rational sub-group, statistical aspects of tolerances, and the basic concepts of probability.

PS 304. MATHEMATICS: ANALYTICAL GEOMETRY AND CALCULUS.
Class 4, cr. 4 $40

Must be preceded by PS 164.
Selected topics from analytical geometry and calculus with applications to industrial problems.

PS 316. GRAPHICAL REPRESENTATION. Lab. 6, cr. 2 $35
Must be preceded by DM 108, PS 164.
Industrial uses of charts, graphs, curves, alignment charts, and special slide rules; elementary statistical concepts.

PS 324. ADVANCED TOPICS IN QUALITY CONTROL I. Class 2, cr. 2 $20
Must be preceded by PS 204.
Sampling plans including Dodge Romig, MIL, Std. 105 and sequential, line of best fit, grouped and ungrouped linear correlation, Standard error of the estimate and significance of differences.

PS 364. ADVANCED TOPICS IN QUALITY CONTROL II,
Class 2, cr. 2 $20

Must be preceded by PS 204.
Confidence limits, analysist of variance, multiple correlation, chi square applications and curve fitting.

SPECIALIZED SERVICE PROGRAMS

The Technical Extension Division co-operates with individual industries or communities in the development and operation of specialized training programs. Such service is rendered without charges other than the regular fees assessed for student enrollment in classes.

Since such highly specialized service courses are usually restricted to a single location and serve a special need, they are not completely described in this general catalog and may differ to some extent in entrance requirements, fees, advanced standing provision and other details from the general fields of study described before in this catalog. Included in these specialized courses are:

Specialized Industrial Programs in co-operation with local industry primarily designed for up-grading technician employees.

The Aviation Technician Program at Lafayette in co-operation with the Purdue Aeronautical Corporation.

The Practical Nursing Training Program at Calumet in collaboration with the hospitals of the area.

The Professional Foreman Program in co-operation with local Foremen clubs.

The Professional Pilot Program in co-operation with the Purdue Aeronautical Corporation at Lafayette.

Brochures describing these specialized programs are available at the Purdue Centers or may be obtained directly from the Division of Technical Institutes at Lafayette.

SPECIALIZED INDUSTRIAL COURSES

The program of study for technical training in the various industries participating in the specialized in-service training programs are selected from the following courses. Additional courses are designed as specific needs are determined.

Chemical and Metallurgical Technology

CM	8.	STEEL PRODUCTION PROCESSES I.	Class 2	$20
		Survey of essential processes in the production of steel.		
CM	16.	STEEL PRODUCTION PROCESSES II.	Class 2	$20
		Must be preceded by CM 8.		
		Continuation of CM 8.		
CM	24.	CHEMISTRY OF STEELMAKING II.	Class 2, Lab. 2	$30
		Must be preceded by PS 4.		
		Continuation of PS 4.		
CM	56.	FERROUS METALLURGY I.	Class 2	$20
		Must be preceded by PS 4, CM 24, CM 8, CM 16.		
		The basic principles of ferrous metallurgy and an understanding of their application to steel production.		
CM	64.	FERROUS METALLURGY II.	Class 2	$20
		Must be preceded by CM 56.		
		Continuation of CM 56.		
CM	72.	METALLURGY OF SHEET AND TIN.	Class 2	$20
		Basic production units and the chemistry and metallurgy involved. History of tin plate making and study of production problems.		

Drafting and Mechanical Technology

DM 8. FERROUS MATERIALS AND PROCESSES. Class 2 $20
Applications and characteristics, both physical and chemical, of the more common ferrous materials; the mechanical processes by which they may be shaped or formed.

DM 24. MECHANICAL MAINTENANCE PRINCIPLES. Class 4 $40
Principles and practices of modern mechanical maintenance.

DM 25. MECHANICAL MAINTENANCE PRINCIPLES—Part I. Class 2 $20
First half of DM 24.

DM 26. MECHANICAL MAINTENANCE PRINCIPLES—Part II. Class 2 $20
Second half of DM 24.

DM 28. ADVANCED MECHANICAL MAINTENANCE PRINCIPLES. Class 4 $40
Continuation of DM 24.

DM 29. MECHANICAL MAINTENANCE PRINCIPLES—Part III. Class 2 $20
First half of DM 28.

DM 30. MECHANICAL MAINTENANCE PRINCIPLES—Part IV. Class 2 $20
Second half of DM 28,

DM 52. TECHNICAL DRAWING AND FREEHAND DRAFTING. Lab. 4 $23
Must be preceded by PS 12.
Introduction to technical drawing and freehand drafting, including use of instruments, lettering, and orthographic projection, and blueprint reading. Preparation of working details, and assembly drawings from simple layouts with emphasis upon industrial practice.

DM 60. MECHANICS: STATICS. Class 3 $30
Must be preceded by PS 12, PS 40.
Fundamentals of mechanics as encountered in the design of structures and machines.

DM 68. STRENGTH OF MATERIALS. Class 2 $20
Must be preceded by DM 60.
A study of the elastic behavior of engineering materials, stress, strain, tension, compression, shear, riveted and welded joints, beams, shafts, and columns.

DM 72. TECHNICAL AND FREEHAND DRAFTING—Part I. Class 2 $20
Introduction to technical and freehand drafting, including use of instruments, lettering, orthographic projection, and blueprint reading, with emphasis upon industrial practices.

DM 73. TECHNICAL AND FREEHAND DRAFTING—Part II. Class 2 $20
Continuation of DM 72, including pictorial sketching and developments.

DM 76. ADVANCED DRAWING AND MECHANISMS. Lab. 4 $23
Must be preceded by DM 52.
Advanced drafting practices, including developments, blueprint reading, and kinematic drawings with graphical solutions to problems.

DM 88. FUELS AND COMBUSTION. Class 2 $20
Study of types and kinds of fuels and their behavior under varied conditions.

Electrical Technology

ET 8. ELECTRICAL LABORATORY. Lab. 2 $12
Electrical equipment operation and maintenance practices.

ET 24. ELECTRICAL MAINTENANCE PRINCIPLES. Class 4 $40
Principles and practices of modern electrical maintenance.

ET 25. ELECTRICAL MAINTENANCE PRINCIPLES. Part, I. Class 2 $20
First half of ET 24.

ET 26. ELECTRICAL MAINTENANCE PRINCIPLES, Part II. Class 2 $20
Second half of ET 24.

ET 28. ADVANCED ELECTRICAL MAINTENANCE PRINCIPLES. Class 4 $40
Continuation of ET 24.

ET 29. ELECTRICAL MAINTENANCE PRINCIPLES, Part III. Class 2 $20
First half of ET 28.

ET 30. ELECTRICAL MAINTENANCE PRINCIPLES. Part IV. Class 2 $20
Second half of ET 28.

ET 40. D.C. CIRCUIT AND MACHINES. Class 3, Lab. 2 $43
Must be preceded by PS 36 and preceded or accompanied by PS 28.
D.C. machines and apparatus from the viewpoint of construction details, industrial application, and methods of operation.

ET 48. ELECTRICAL MAINTENANCE. Part I. Class 3 $30
A brief consideration of the theory and practice of the maintenance of electrical machines and controls centered about a series of graded blueprints in such manner that the student becomes familiar with blueprint reading as he studies basic theory and practice.

ET 49. ELECTRICAL MAINTENANCE. Part II. Cl. 3 $30
Continuation of ET 48.

ET 50. ELECTRICAL MAINTENANCE. Part III. Cl. 3 $30
Continuation of ET 49.

ET 52. A,C. CIRCUITS. Class 3, Lab. 2 $43
Must be preceded by ET 40.
Nature of alternating current, methods of generation, single-phase currents, polyphase currents; practical concepts of power, power-factor, reactive factor, reactance and impedance; simple a.c. circuit calculations.

ET 60. A.C. MACHINES. Class 3, Lab. 2 $43
Must be preceded by ET 52.
Construction details and practical performance of transformers, induction motors, alternators, synchronous motors, rectifiers, and other common alternating current apparatus.

ET 68. MOTOR CONTROL. Class 3 $30
Application of controllers for electric motors used in the steel industry.

ET 76. SURVEY OF ELECTRONICS. Class 3 $30
Must be preceded by ET 52.
A survey of electronics as it applies to controls used in industry.

ET 92. INDUSTRIAL ELECTRONICS. Class 2 $20
Principles of operation and industrial applications of the common types of vacuum and gas tubes, photo-electric cells, and cathode ray tubes.

General Studies

GN 4. FUNDAMENTALS OF PRACTICAL SPEAKING. Class 2 $20
Organization and presentation of material, voice and physical delivery, audience reaction.

GN 5. FUNDAMENTALS OF PRACTICAL SPEAKING, PART I. Class 1 $10
First half of GN 4.

GN 6. FUNDAMENTALS OF PRACTICAL SPEAKING, PART II. Class 1 $10
Second half of GN 4

GN 20. PSYCHOLOGY. Class 2 $20
Selected fundamentals of psychology and their application to the solution of industrial personnel problems.

GN 32. DEMOCRATIC GOVERNMENT. Class 2 $20
Democratic processes in government and the practices within which they function.

GN 40. ECONOMICS OF INDUSTRY. Class 2 $20
Economic principles as applied to major industrial problems.

GN 41. ECONOMICS OF INDUSTRY, PART I. Class 1 $10
First half of GN 40.

GN 42. ECONOMICS OF INDUSTRY, PART II. Class 1 $10
Second half of GN 40.

GN 72. PSYCHOLOGY AND HUMAN RELATIONS. Cl. 2 $20
A study of selected fundamentals of psychology as related to a supervisor and his men.

Industrial Technology

IT 4. INDUSTRIAL ORGANIZATION AND PRODUCTION. Class 4 $40
A detailed survey of organizational structures; operational, financial, marketing, and accounting activities; duties of management, planning, control, personnel, safety, wages, policy and human factors necessary for effective management,

IT 5. INDUSTRIAL ORGANIZATION AND PRODUCTION. Part I. Class 2 $20
First half of IT 4.

IT 6. INDUSTRIAL ORGANIZATION AND PRODUCTION. Part. II. Class 2 $20
Second half of IT 4.

IT 8. INDUSTRIAL ORGANIZATION. Class 2 $20
An introduction to the types of industrial organization and techniques of control.

IT 9. INDUSTRIAL ORGANIZATION, PART I. Class 1 $10
First half of IT 8.

IT 10. INDUSTRIAL ORGANIZATION, PART II. Class 1 $10
Second half of IT 8.

IT 32. HUMAN RELATIONS IN INDUSTRY. Class 2 $20
Must be preceded by GN 20, IT 4.
A study of industrial personnel problems. Relations of the supervisor and his men.

IT 33. HUMAN RELATIONS IN INDUSTRY. Class 1 $10
Must be preceded by GN 20, IT 4.
First half of IT 32.

IT 34. HUMAN RELATIONS IN INDUSTRY. Class 1 $10
Must be preceded by IT 33.
Second half of IT 32.

IT 40. PRODUCTION COST ANALYSIS. Class 2 $20
A study of a typical industry's cost analysis procedure and methods.

IT 48. JOB EVALUATION AND WAGE INCENTIVES. Class 2 $20
Study of basic principles involved in establishing wage incentive rates through job study and classification as well as the problems connected with Installation and maintenance of wage incentives.

Physical Sciences

PS 4. CHEMISTRY OF STEEL I. Class 2 $20
Must be preceded or accompanied by PS 13.
General basic principles of chemistry necessary to understand the various processes in the manufacture of steel.

PS 8. INDUSTRIAL MATHEMATICS. Class 2 $20
Brief view of arithmetic and fundamental techniques of algebra as encountered in industrial problems.

PS 9. INDUSTRIAL MATHEMATICS, PART I. Class 1 $10
First half of PS 8.

PS 10. INDUSTRIAL MATHEMATICS, PART II, Class 1 $10
Second half of PS 8.

PS 12. ARITHMETIC, ALGEBRA & TRIGONOMETRY. Class 4 $40
Brief review of the fundamentals of arithmetic. Study of selected topics from algebra, geometry and trigonometry with applications to industrial problems. Use of slide rule.

PS 13. MATHEMATICS: ARITHMETIC AND ALGEBRA. Class 2 $20
First half of PS 12.

PS 14. MATHEMATICS: ALGEBRA AND TRIGONOMETRY. Class 2 $20
Second half of PS 12.

PS 16. INDUSTRIAL MATHEMATICS. Class 2 $20
Continuation of PS 8. Additional algebra and trigonometry related to the solution of industrial problems.

PS 17. INDUSTRIAL MATHEMATICS. Class 1 $10
First half of PS 16.

PS 18. INDUSTRIAL MATHEMATICS. Class 1 $10
Second half of PS 16.

PS 20. ARITHMETIC & ALGEBRA. Class 2 $20
Brief review of the fundamentals of arithmetic. Fundamental concepts and techniques of algebra necessary for subsequent courses and area of employment. Use of slide rule in problems involving multiplication and division.

PS 28. ALGEBRA AND TRIGONOMETRY. Class 2 $20
Must be preceded by PS 20.
Additional concepts and techniques of algebra necessary for subsequent work in related courses and areas of employment; trigonometry related to the solution of applied problems; use of the slide rule in solving problems involving the trigonometric functions.

PS 36. PHYSICS: ELECTRICITY. Class 3 $30
Must be preceded or accompanied by PS 20.
Elements of electricity and their applications to industry.

PS 40. PHYSICS: MECHANICS. Class 3 $30
Must be preceded by PS 12.
Basic principles of mechanics, properties of materials and selected elements of heat related to practical applications in steel mills. Includes units, vectors, torque, velocity, and acceleration, force and motion, rotation of rigid bodies, uniform circular motion, friction, work and power, energy momentum, elastic properties of solids, liquids at rest, fluids in motion, properties of gases and selected elements of heat. Emphasis on vectors, torque and elastic properties of solids.

PS 44. PHYSICS: ELECTRICITY. Class 2 $20
Survey of the elements of electricity.

PS 52. PHYSICS: MECHANICS AND ELECTRICITY. Class 4 $40
Must be preceded by PS 28.
Basic principles of mechanics and selected elements of electricity and magnetism. Basic principles are related to practical applications in steel mills. Covers vectors, torque, velocity and acceleration, force and motion, friction, work and power, energy, rotation of rigid bodies, momentum, uniform circular motion, vibratory motion, elastic properties of solids, liquids, fluids in motion, properties of gases, molecular theory of matter, static electricity, DC circuits, electrical energy and power, magnetism, electro-magnetic induction, transformers, generators and motors, capacitance, alternating currents and rectifiers.

PS 72. CONTROL OF QUALITY IN STEEL PRODUCTION. Class 2 $20
Must be preceded by PS 28.
Fundamentals of the control of quality in steel production.

AVIATION TECHNICIAN PROGRAM

Associate Technical Aide Diploma

The Aviation Technician program is designed to qualify a limited number of high school graduates as aircraft and engine mechanics.

Aircraft mechanics work on engines, engine accessories, and aircraft frames. Unlike automobile mechanics the aviation technicians must be certified by the Civil Aeronautics Administration.

The first year of study is devoted primarily to allied course work and specialized lectures and laboratories in aircraft engines, accessories, and frames. During the second year, the major amount of time is utilized in providing the student with actual mechanical experience on "live" aircraft. This work is done in the Civil Aeronautics Administration approved repair station operated by Purdue Aeronautics Corporation. Beginning groups start in September of each year. The program is available on the Lafayette campus only.

Tuition for the course is $175 a semester. This covers registration, medical and infirmary, and student activity fees as well as a kit of tools valued at approximately $40.

Aviation Technician Program

First Semester

			Class	Lab.	Credit
AM	104	Aircraft Welding and Materials	0	5	2
AM	124	Aircraft Engines	3	6	5
AM	132	Aircraft Engine Accessories	3	6	5
GN	104	English Grammar and Composition	2	0	2
PS	113	Algebra and Geometry, Part I	2	0	2
PS	133	Physics—Mechanics, Part I	2	1	2

Second Semester

AM	152	Aircraft Fabrication	2	5	3
AM	168	Aircraft Maintenance	4	5	5
DM	108	Technical Drawing	0	6	2
GN	152	Fundamentals of Technical Writing	2	0	2
PS	114	Algebra and Geometry, Part II	2	0	2
PS	134	Physics—Mechanics and Electricity, Part II	2	1	2

Third Semester

AM	204	Airframe and Powerplant, Part I	0	20	6
AM	224	Aircraft Powerplant Lectures	5	0	5
GN	220	Technical Report Writing	2	0	2
PS	165	Advanced Algebra	2	0	2
PS	173	Physics-Electricity and Heat, Part I	2	1	2

Fourth Semester

AM	252	Airframe and Powerplant, Part II	0	20	6
AM	264	Airframe Lectures	5	0	5
AM	260	Maintenance Practices	0	6	2
PS	166	Trigonometry	2	0	2
PS	174	Physics—Heat, Part II	2	1	2

AM 104. AIRCRAFT WELDING AND MATERIALS. Lab. 5, cr. 2
Welding practices applied to aircraft materials; alloys of steel, aluminum, magnesium, and nickel.

AM 124. AIRCRAFT ENGINES. Class 3, Lab. 6, cr. 5
Fundamental principles of aircraft engines including practical application and operation.

AM 132. AIRCRAFT ENGINE ACCESSORIES. Class 3, Lab. 6, cr. 5
Fundamental principles of propellers, fuel controls, ignition and starter systems including practical application and operation.

AM 152. AIRCRAFT FABRICATION. Class 2, Lab. 5, cr. 3
Aircraft fabrication practices, application and use of hand and machine sheet metal tools, preparation, forming, fastening, and assembly of various airframe materials.

AM 168. AIRCRAFT MAINTENANCE. Class 4, Lab. 5, cr. 5
Fundamental principles of aircraft hydraulic systems and units, fabric and finishing methods, rigging and assembly, electrical systems and aircraft inspection, including practical applications and repairs.

AM 204. AIRFRAME AND POWERPLANT. Lab. 20, cr. 6
Laboratory Part I.
Maintenance of airworthy powerplants, powerplant accessories and airframes.

AM 224. AIRCRAFT POWERPLANT LECTURES. Class 5, cr. 5
Co-ordinated with AM 204 and includes additional instruction on problems encountered in the laboratory,

AM 252. AIRFRAME AND POWERPLANT. Lab. 20, cr. 6
Laboratory Part II.
Continuation of AM 204.

AM 264. AIRFRAME LECTURES. Class 5, cr. 5
Co-ordinated with AM 252 and includes additional instruction on problems encountered in the laboratory.

AM 260. MAINTENANCE PRACTICES. Lab. 6, cr. 2
To familarize the student with specialized procedure in maintenance of aircraft and engine components with particular emphasis on the use of specialized tools.

See page 26 for course descriptions for Drafting and Mechanical Technology, page 30 for General Studies, and page 34 for Physical Sciences.

PRACTICAL NURSING PROGRAM (Calumet)

Practical Nursing Certificate

The National Association for Practical Nursing Education defines a practical nurse as a person trained to care for selected subacute convalescent and chronic patients, and to assist the professional nurse in a team relationship, especially in the care of those more acutely ill. She provides nursing service in private homes, and in institutions. She may be employed by the lay public, hospitals or health agencies. A practical nurse works only under the direct orders of a licensed physician or the supervision of a registered professional nurse.

The program emphasizes the acquisition of skills in caring for the patient and assisting with the home and hospital duties associated with illness and convalescence. To the extent possible the skills and techniques are soundly grounded in understanding of the basic principles involved.

The course consists of sixteen weeks of classroom and laboratory instruction at the Calumet Center followed by 4 eight weeks periods at each of the four co-operating hospitals. All instruction is under the supervision of the Purdue University Technical Institute working in co-operation with a Community Advisory Council. The program is accredited by the Indiana State Board of Nurses Registration and Nursing Education and by the National Association of Practical Nurse Education.

First Semester

PN	8.	Vocational Ethics and Personal Hygiene.	Class 6	$33
PN	16.	Family Living.	Class 5, Lab. 4	$39
PN	24.	Nursing Care.	Class 5, Lab. 11	$58

Second and Third Semesters

PN	44.	Medical Clinical Experiences.	8 weeks.	Class 4, Lab. 36	$5
PN	56.	Surgical Clinical Experience.	8 weeks.	Class 4, Lab. 36	$5
PN	64.	Maternity and Dietary Clinical Experience.	8 weeks.	Class 4, Lab. 36	$5
PN	72.	Pediatrics and Long term Illness Clinical Experience.	8 weeks.	Class 4, Lab. 36	$5

PN 8. VOCATIONAL ETHICS AND PERSONAL HYGIENE. Class 6 $33
Designed to give the practical nurse student an understanding of ethical and inter-personal relationships with the patient, the family, the physician, the professional nurse, and other co-workers. Includes development of an understanding of the patient's needs by making the student nurse aware of her own physiological, psychological, and community needs.

PN 16. FAMILY LIVING. Class 5, Lab. 4 $39

Deals with the basic principles for successful family life, with special emphasis on the role of the practical nurse when caring for a patient in his home. Stresses food preparation, meal planning and buying, serving of regular and special diets, budgeting, and organization of home duties in order to provide a clean and wholesome environment for the sick.

Includes normal child development and problems of the aged, with emphasis on the health needs of these two age groups, and the necessity for planned activities to give them security and enrich their lives.

PN 24. NURSING CARE. Class 5, Lab. 11 $58

Develop skills necessary to give good nursing care to the sub-acute, convalescent, and chronically ill patient, together with an understanding of the basic principles involved. Demonstration and practice of nursing skills form a major portion of this course.

Knowledge of normal pregnancy and common illnesses is included, together with nursing measures required in these specific conditions.

PN 44. MEDICAL CLINICAL EXPERIENCE. 8 weeks. Class 4, Lab. 36 $5

Practical application of acquired nursing skills in the care of the medical patient in the hospital. Classroom instruction includes specialized medical techniques which have not been covered in the preclinical period.

This course is given at Methodist Hospital—Gary, Indiana.

PN 56. SURGICAL CLINICAL EXPERIENCE. 8 weeks. Class 4, Lab. 36 $5

Practical application of acquired nursing skills in the care of the surgical patient in the hospital. Classroom instruction includes specialized surgical techniques which have not been covered in the preclinical period.

This course is given at St. Catherine's Hospital—East Chicago, Indiana.

PN 64. MATERNITY AND DIETARY CLINICAL EXPERIENCE, 8 weeks. Class 4, Lab. 36 $5

Practical application of acquired nursing skills in the case of mothers and newborn infants in the hospital. Includes two weeks experience in the hospital's special diet kitchen. Classroom instruction includes specialized maternity, nursery, and dietary techniques which were not covered in the preclinical period.

This course is given at St. Margaret's Hospital—Hammond, Indiana.

PN 72. PEDIATRICS AND LONG TERM ILLNESS CLINICAL EXPERIENCE. 8 weeks. Class 4, Lab. 36 $5

Practical application of acquired nursing skills in the care of children and patients whose conditions require long term hospitalization. Classroom instruction includes specialized nursing techniques, applicable to these patients, which were not covered in the preclinical period.

This course is given at St. Mary's Mercy Hospital—Gary, Indiana.

PROFESSIONAL PILOT PROGRAM

Associate Technical Aide Diploma

The Purdue Professional Pilot Program is designed to prepare a small, carefully selected group of young men for careers as professional pilots. This intensive two year program combines regular classroom courses with advanced flight instruction to give the student training and experience to qualify as a co-pilot with scheduled air carriers or as an executive pilot with private multi-engine equipment operators. The program is available only on the Lafayette campus.

ADMISSION

To be eligible for selection, applicants must be high school graduates, be less than 25 years of age, hold CAA Commercial Certificate (unrestricted) and Instrument Rating, and have fulfilled military service obligations.

COURSE FEES

A charge of $175 is made for each of the two semesters of the first year and $30 a semester for the second year. This covers all fees, registration, medical, course, convocations, and student activities, including home athletic games.

FLIGHT PAY

During the twelve month period from June 1 to May 31 following the completion of the first year the students will receive $100 a month. Each student will log a minimum of 300 hours of DC 3 co-pilot flight time as well as approximately 100 hours in air taxi equipment. At the end of the second year each student will receive four dollars per hour for each hour of DC 3 time logged in excess of 300 hours.

DIPLOMA

The Associate Technical Aide diploma is awarded to each student who satisfactorily completes the program of study.

First Semester

			Class	Lab.	Credit
PS	113.	Mathematics. Part I	2		1
PS	133.	Physics, Part I	2	1	2
GN	104.	English	2		2
PP	108.	Meteorology	2		2
PP	124.	Powerplants	2		2
PP	132.	Airways Procedures I	1	2	1
PP	140.	Airlines Operations I	2	3	2
PP	148.	Flight Dispatching I	1	5	1

Second Semester

PS	114.	Mathematics. Part II.	2		2
PS	134.	Physics	2	1	2
GN	152.	Fundamentals of Technical Writing	2		2
PP	152.	Navigation	2		2
PP	164.	DC-3 Airplane	3		3
PP	172.	Airways Procedures II	1	2	1
PP	180.	Airlines Operations II	2	3	2
PP	188.	Flight Dispatching II	1	5	1

SUMMER

PP	204.	DC-3 Certification	1	10	3
PP	212.	DC-3 Cockpit Procedures	2		2
PP	228.	Flight Dispatching III	1	20	7
PP	232.	Flight Schedules I		6	2

Third Semester

PS	165.	Advanced Algebra	2		2
PP	240.	Airline Operations III	2	4	2
PP	248.	Flight Dispatching IV	1	20	7
PP	272.	Flight Schedules II		6	2
GN	220.	Technical Report Writing	2		2

Fourth Semester

PS	166.	Trigonometry	2		2
PP	280.	Airline Operations IV	2	3	2
PP	288.	Flight Dispatching V	1	20	7
PP	292.	Flight Schedules III		6	2

PP 108. AIRLINE METEOROLOGY. Class 2, Lab. 0, cr. 2
The purpose of this course is to introduce the material, information, and methods used by the airlines to determine the effects of weather on airline operation.

PP 124. AIRLINE TYPE POWERPLANTS. Class 2, Lab. 0, cr. 2
This course is designed to give the pilot an operational knowledge of airline type aircraft engines and the functions of their component parts and accessories.

PP 132. AIRWAYS PROCEDURES I. Class 1, Lab. 2, cr. 1
This instruction will supplement the pilots instrument flight experience with a study and practice of the proper procedures for conducting instrument flight according to Civil Air Regulations including the proper execution of departure, enroute, and letting down through to landing procedures, according to existing instructions and regulations. Practice in the proper voice procedures used in airways flying is also provided.
The laboratory work will be given in the Link Trainer.

PP 140. AIRLINES OPERATIONS I. Class 2, Lab. 3, cr. 2
This course continued for four semesters will acquaint the pilot with the various phases of an airline operation, its organization, function, and limiting regulation.

PP 148. FLIGHT DISPATCHING I. Class 1, Lab. 5, cr. 1
Introduces the pilot to the factors that contribute to the actual dispatching and release of a flight. The pilot will receive instruction and practice in preparing and organizing these factors and releasing flights. The pilot will be qualified to operate a company radio system and will practice flight control by following flight progress.
Completion of Flight Dispatching I, II, III, IV, and V may lead to completing qualifications for the rating of Flight Dispatcher.

PP 152. AIRWAYS NAVIGATION. Class 2, Lab. 0, cr. 2
A study of navigation by the use of airways navigational aids, and Airline flight calculators, with special emphasis on the preparation of flight plans and flight logs, and includes the study of maps, charts, and airway manuals. (Jepco).

PP 164. DOUGLAS DC-3 AIRPLANE. Class 3, Lab. 0, cr. 3
Acquaints the pilot with the design, construction and characteristics of the Douglas DC-3 and its accessories.

PP 172. AIRWAYS PROCEDURES II. Class 1, Lab. 2, cr. 1
Continuation of and must be preceded by PP 132.

PP 180. AIRLINES OPERATIONS II. Class 2, Lab. 3, cr. 2
Continuation of and must be preceded by PP 140.

PP 188. FLIGHT DISPATCHING II. Class 1, Lab. 5, cr. 1
Continuation of and must be preceded by PP 148.

PP 204. DOUGLAS DC-3 CERTIFICATION. Class 1, Lab. 10, cr. 3
The flight phase of the Douglas DC-3 qualification. Upon completion of the course the pilot will be given a PAC flight check by a Check Pilot and certificated to fly as a Co-Pilot on Douglas DC-3 Aircraft for PAC in accordance with PAC regulations and Civil Air Regulations.

PP 212. DOUGLAS DC-3 COCKPIT PROCEDURES. Class 2, Lab. 0, cr. 2
Instruction and practice in the standardization and co-ordination of the procedures of the cockpit functions.

PP 228. FLIGHT DISPATCHING III. Class 1, Lab. 20, cr. 7
Continuation of and must be preceded by PP 188.
This course offered during summer session between first and second years and operates for the entire summer.

PP 232. FLIGHT SCHEDULES I. Class 0, Lab. 6, cr. 2
Live flight laboratory to give the pilot the opportunity to obtain flight experience in the Douglas DC-3 under actual flight conditions. Includes instruction in the handling of passengers, fuel management, inspection, and the various phases of flight operation away from the home base.
This course is offered during the summer session between the first and second years and operates for the entire summer.

PP 240. AIRLINES OPERATIONS III. Class 2, Lab. 3, cr. 2
Continuation of and must be preceded by PP 180.

PP 248. FLIGHT DISPATCHING IV. Class 1, Lab. 20, cr. 7
Continuation of and must be preceded by PP 228.

PP 272. FLIGHT SCHEDULES II. Class 0, Lab. 6, cr. 2
Continuation of and must be preceded by PP 232.

PP 280. AIRLINES OPERATIONS IV. Class 2, Lab. 3, cr. 2
Continuation of and must be preceded by PP 240.

PP 288. FLIGHT DISPATCHING V. Class 2, Lab. 20, cr. 7
Continuation of and must be preceded by PP 248.

PP 292. FLIGHT SCHEDULES III. Class 0, Lab. 6, cr. 2
Continuation of and must be preceded by PP 272.

See page 30 for course description for General Studies and page 34 for Physical Sciences.

FACULTY

TECHNICAL INSTITUTES*

VONROY DAUGHERTY, Head

ROBERT L. ANDERSON (1947).....Assistant Professor of Electrical Technology (Calumet)

B.S., Rose Polytechnic Institute; graduate study, University of Pittsburgh; Registered Professional Engineer; four years manufacturing testing of electrical equipment.

CLARENCE J. BEAUCHAMP (1953).....Instructor in Drafting & Mechanical Technology (Calumet)

B.S., M.S., Stout Institute, eleven years Layout and Tool design and seven years teaching.

NORMAN V. BENEDICT (1950).....Instructor in Industrial Technology (Calumet)

B.S.E.E., Purdue University; Diploma in Commerce, Northwestern University; seven years industrial and electrical engineering.

HOWARD M. BRADFORD (1947).....Instructor in Industrial Technology (Indianapolis)

Twenty-nine years industrial engineering and management.

PAUL B. COX (1946).....Assistant Professor of Drafting and Mechanical Technology (Fort Wayne)

B.S.E.E., M.S.E., Purdue University; graduate study, Indiana University and University of Wisconsin; fourteen years teacher of mathematics; four years industrial drafting.

EDWIN H. ERNST (1946).....Assistant Professor of General Studies (Indianapolis)

B.A., M.A., Notre Dame; eight years teacher of English and history; seven years interviewer and investigator, commercial and government services.

PATRICK V. FLANNERY (1947).....Assistant Professor of Physical Sciences (Calumet)

B.S., St. Mary's College; N.S., M.S., Fordham University; eight years teacher of physics, chemistry, and mathematics.

†L. FERNALD FOSTER, JR. (1950).....Instructor in General Studies (Indianapolis)

B.A., Michigan State College; M.S., University of Wisconsin; two years teacher of speech and history.

OTTO GUMPPER (1948).....Instructor in Building Construction Technology (Fort Wayne)

B.S.C.E., Purdue University; ten years building contractor; eighteen years municipal engineering.

FRANK D. HAYS (1946).....Assistant Professor of General Studies (Calumet)

Ph.B., A.M., Niagara University; graduate study Syracuse University; eight years teacher of social studies; one year chemical analyst.

JOHN F. LINDLEY (1953).....Instructor in Building Construction Technology (Calumet)

B.S.C.E., Purdue University; M.S.C.E., University of California; five years structural engineer.

FREDERICK R. LISARELLI (1946).....Assistant Professor of Drafting and Mechanical Technology (Michigan City)

B.S., University of Alabama; M.A., Columbia University; six years machine design.

THAD G. LUTZ (1946).....Instructor in Industrial Technology (Calumet)

B.S., Ch.E., Carnegie Institute of Technology; fifteen years metallurgy and industrial engineering.

MARY R. MAGENSKY (1954).....Administrative Assistant in Practical Nursing Calumet)

B.S., St. Xavier College; B.S. N. Ed., Loyola University; R. N., St. Francis School of Nursing; eight years in Nursing Education; seven years Federal Social Security Board.

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* This list includes only full-time staff members.
† Leave of Absence 1954-55.

THOMAS R. NUNN (1946).....Assistant Professor of General Studies (Michigan City)

A.B., Central Michigan College; A.M., University of Michigan; graduate study, University of Chicago; twenty-six years teacher of English; four years manufacturing.

CONWELL J. POLING (1945).....Assistant Professor of General Studies (Fort Wayne)

A.B., Ohio Northern University; M.A., Ohio State University; six years teacher of social studies.

GILBERT RAINEY (1953).....Instructor in Physical Science (Calumet)

B.S., Indiana State Teachers College, two years industrial and three years teaching experience.

ESTHER F. RAMSEY (1954).....Instructor in Practical Nursing (Calumet)

Certificate of Nursing, Mercy Hospital School for Nurses, Chicago; Nursing course work, Northwestern University and St. Xaviers College; five years Industrial Nurse; five years Nurse Corps U.S.N.; ten years nursing supervision.

JOSEPH C. RAPALSKI (1948).....Instructor in Electrical Technology (Calumet)

B.S.E.E., Purdue University; graduate study, Purdue University; nine years electrical testing and maintenance.

NICHOLAS C. RELICH (1948).....Assistant Professor of Drafting and Mechanical Technology (Calumet)

B.S., University of Illinois; M.S., Purdue University; eleven years metallurgy.

CHARLES F. RHODES (1948).....Assistant Professor of Electrical Technology (Calumet)

B.S.E.E., Lewis Institute of Technology; graduate study, Northwestern University; two years teacher of physics and radio; fourteen years manufacturing, drafting, and designing.

MARY L. SABOL (1954).....Instructor in Practical Nursing (Calumet)

B.S., Indiana University; seven years teacher of Home Economics; one year County Home Demonstration Agent, Purdue University.

FRANCIS F. SCHLOSSER (1946)..Assistant Professor of Physical Sciences (Calumet)

Ph.B., Ph.M., University of Wisconsin; twenty-two years teacher of chemistry and physics; consultant related industrial problems.

MERLE D. SCHMID (1952).....Instructor of Industrial Technology (Calumet)

B.S., University of Washington; M.S., University of Arizona; fifteen years metallurgy and industrial engineering.

LLOYD W. SCHOLL (1947).....Assistant Professor of Building Construction Technology (Indianapolis)

B.S., University of Illinois; Registered Architect; Registered Professional Engineer; six years structural engineering and drafting.

LLOYD W. SMITH (1948).....Instructor of Building Construction Technology (Fort Wayne)

B.S.C.E., Purdue University, seven years engineering.

HERMAN W. STOELK (1947).....Instructor in Drafting and Mechanical Technology (Indianapolis)

Armour Institute of Technology; Morton College; twenty-five years tool engineering and design.

HAROLD A. WILLIAMSON (1946).....Associate Professor of General Studies (Calumet)

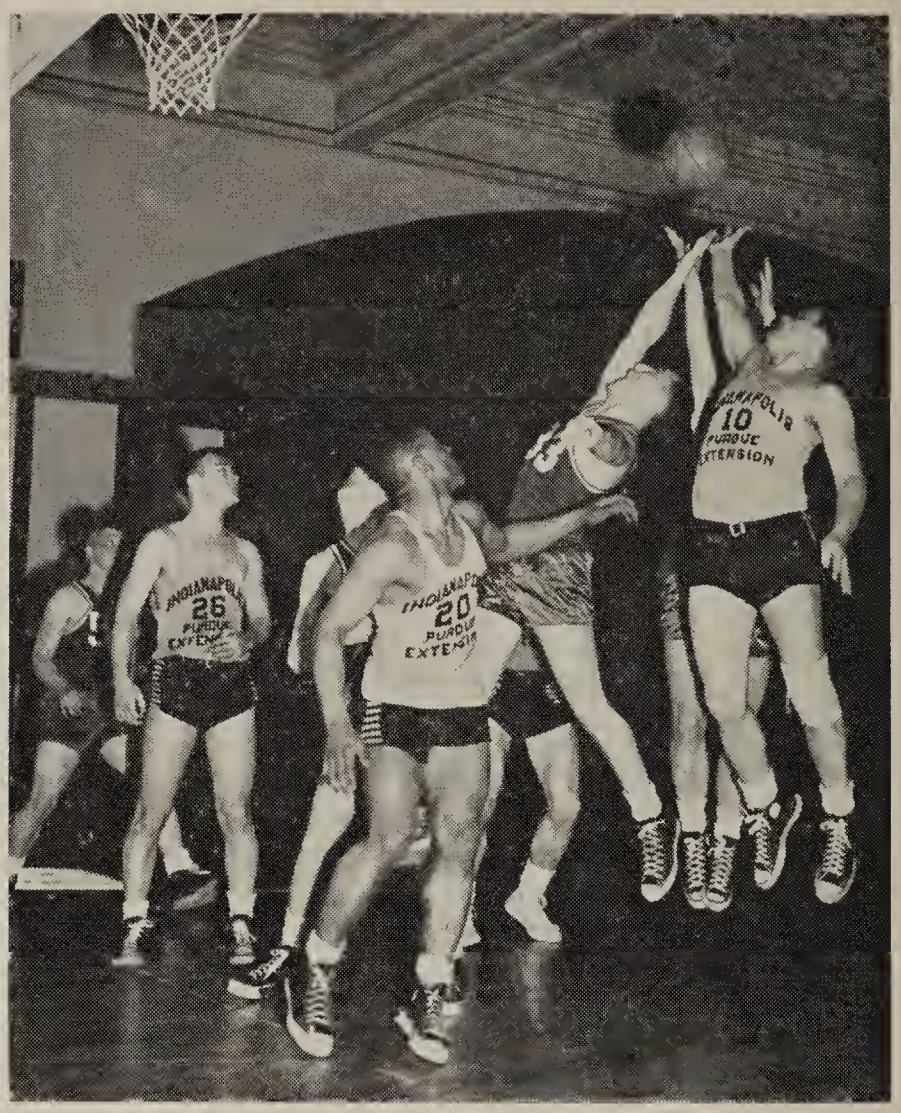
B.S., Kansas State Teachers College; M.S., Kansas State College; graduate study, University of Kansas; fifteen years teacher of English, history, and speech.

HOWARD L. WISNER (1946).....Associate Professor of Electrical Technology (Indianapolis)

A.B., M.S., Indiana University; nine years teacher of physics and mathematics; two years electronics test engineering.

CLARENCE H. ZACHER (1948)....Assistant Professor in Drafting and Mechanical Technology (Calumet)

B.S., Armour Institute of Technology; graduate study, Chicago Teachers College; seven years teacher of drafting; five years drafting, designing, and surveying.



Center basketball teams interest players and spectators.

Extracurricular activities are part of the program of the Technical Institute student.

INDEX

Accredited curricula 3
Administrative officers ..... IBC
Admission, general requirements 6
  procedure 6
Advanced standing 6
  examination for 6
Associate technical aide 10
Aviation Technician 41

Building construction technology 12
  courses in 22

Calendar ..... IFC
Chemical and metallurgical technology 14
  courses in 24, 36
Civil Aeronautics Administration 41
Contents, table of 2
Courses, description of 21
  numbering of 22
Credits 7
Curriculum 3

Definition, Technical Institute 3
Description of courses 21
Diploma 6
Drafting and mechanical technology 16
  courses in 26, 37

Electrical technology 18
  courses in 28, 38
Employment of graduates 5
Engineers' council 3
Examinations, orientation 6
  advanced standing 8

Faculty 48
Fees 7
Fields of study 6
Flight Pay 45
Fundamental courses 10

General studies, courses in 30, 38
General information 5
Grades and honors 9

Information, general 5
Industrial chemistry 14, 36
Industrial electricity 18, 38
Industrial technology 20
  courses in 32, 39
Instruction 21

Metallurgy 14

Non-Technical courses 10
Nursing, practical 43

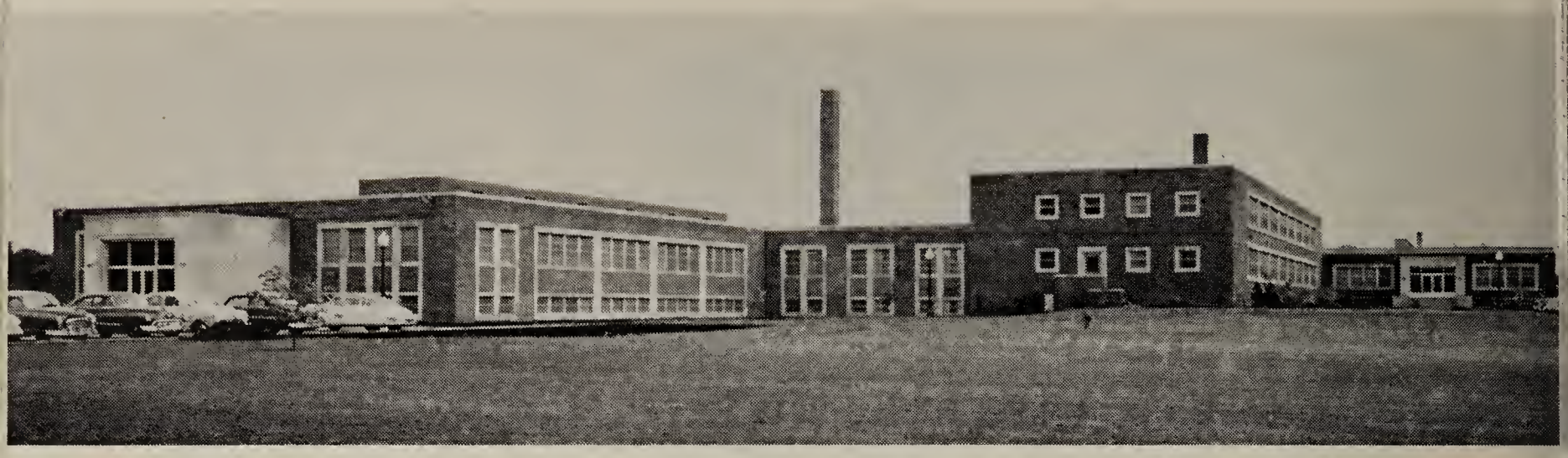
Officers of administration ..... IBC
Orientation examinations 6

Part-time students 11
Pilots, Professional 45
Physical sciences, courses in 34, 40
Practical Nursing 43
Production planning 16
Professional Pilots 45
Program planning 11
Programs of study 10
Purdue centers 3

Radio and Television 18
Refunds, fees 8
Registration, permission 6
Requirements for admission 6

Service, to public and industry 3
Special services, industry 5
Special students 6
Specialized Service programs 36
Specialized Industrial Courses 36
Students
  full-time 11
  part-time 11
  special 6

Technical aide 11
Technical institute, definition 3
  purpose 3
Television 18



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PURDUE UNIVERSITY
Division of Technical Extension

REGIONAL OFFICES

MICHIGAN CITY
Purdue-Barker Center
631 Washington Street
Michigan City, Indiana
Phone 4-4636

FORT WAYNE
Purdue University Center
Jefferson and Barr Streets
Fort Wayne, Indiana
Phone: Anthony 3171

HAMMOND
Purdue University Center
2233 171st Street
Hammond, Indiana
Phone: TIlden 40520

COLUMBUS
Purdue University Center
5th and Lafayette Streets
Columbus, Indiana
Phone: 2-1612

INDIANAPOLIS
Purdue Marott Center
902 North Meridian Street
Indianapolis 4, Indiana
Phone: MElrose 4-3548